

12. Ecology

Introduction

- 12.1 This Chapter sets out the ecological baseline conditions and impacts of the Development and has been produced by Thomson Ecology Ltd, a specialist ecological consultancy. The assessment makes use of historical survey data and the 2007 ES (Roger Evans Associates Ltd) along with data from an updated extended Phase 1 habitat survey and desk study and surveys for protected species, namely great crested newts, reptiles and bats by Thomson Ecology Ltd in 2010.

Legislation and Planning Policy Context

- 12.2 The following wildlife legislation and national, regional and local planning policies relevant to ecology and nature conservation have been referred to within this chapter:

Legislation

The Conservation of Habitats and Species Regulations 2010

- 12.3 The Conservation of Habitats and Species Regulations 2010 provides for the protection of sites in the UK that support habitats and species in need of conservation across Europe and full protection of species of European importance, including great crested newts and bats, whether occurring within designated sites or not. The 2010 version consolidates all the amendments to the Habitats regulations that have been made since 1994 and also implements part of the Marine and Coastal Access Act 2009.

Wildlife and Countryside Act, 1981 (as amended)

- 12.4 The Wildlife and Countryside Act, 1981 (as amended) deals with the protection of sites that are important for nature conservation in a National context (for example Sites of Special Scientific Interest (SSSIs)) and the protection of certain species. All birds, their nests whilst in use and eggs are protected under the Wildlife and Countryside Act 1981 (as amended).

The Countryside and Rights of Way Act, 2000

- 12.5 The Countryside and Rights of Way Act, 2000 strengthens the protection given to SSSIs and certain species under the Wildlife and Countryside Act making it an offence to '*recklessly damage or destroy or obstruct access to any place which animals listed under Schedule 5 of the Wildlife and Countryside Act use for shelter or protection; or disturb such an animal whilst it is occupying a structure or place that it is using for shelter or protection.*' This protection also applies to Schedule 1 birds.

Wild Mammals (Protection) Act, 1996

- 12.6 The Wild Mammals (Protection) Act, 1996 provides protection to all mammals including those not protected under the Conservation (Natural Habitats &c) Regulations 2010, the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act, 2000. Amongst other things, the act makes it an offence to crush or asphyxiate any wild mammal with intent to inflict unnecessary suffering. This includes bats but is more relevant to foxes, rabbits and other species which receive no other protection.

The Natural Environment and Rural Communities Act, 2006

- 12.7 Amongst other things, the Natural Environment and Rural Communities (NERC) Act, 2006 requires government departments to have regard for the Convention on Biological Diversity and compels the Secretary of State to produce a list of species and Habitats of Principal Importance for the conservation of biodiversity and to take or promote steps to further their conservation. This list includes great crested newts and seven bat species including soprano pipistrelle (*Pipistrellus pygmaeus*), noctule (*Nyctalus noctula*) and brown long-eared (*Plecotus auricus*) and birds including house, sparrow and starling. Hedgerows at the Site are UK BAP and are Habitats of Principal Importance under Section 41 of the NERC Act, 2007 since the previous survey was undertaken so these should now be taken into consideration.

Planning Policy

Planning Policy Statement 9: 'Biodiversity and Geological Conservation'

- 12.8 PPS9 sets out planning policies on the protection of biodiversity and geological conservation through the planning system. The presence of protected species is a material consideration in determining planning applications as stated in the Government Circular: 'Biodiversity and Geological Conservation' (ODPM 06/2005) which accompanies government planning policy PPS9. Additionally, under PPS9 Local Planning Authorities should protect species of principal importance for the conservation of biodiversity in England from the adverse effects of development.

Oxfordshire Structure Plan 2016

- 12.9 The Oxfordshire Structure Plan is discussed in **Paragraph 4.2.3**. 'Saved' Policy H2 'Upper Heyford' includes a requirement for the enhancement of biodiversity at the Site.

Cherwell Local Plan 1996 'Saved' Policies

- 12.10 Details of the 'saved' policies relating to wildlife and ecology at the Site are outlined in Table 4.1 with full details in **Appendix 4.1**. These policies promote the protection and enhancement of biodiversity. Policy C2 states that '*development which would adversely affect any species protected by Schedule 1, Schedule 5 and Schedule 8 of the 1981 Wildlife and Countryside Act, and by the EC Habitats Directive 1992*' (now consolidated in the Conservation of Habitats and Species 2010) *will not normally be permitted.*'
- 12.11 Policy C4 states that the council will seek to promote '*the interests of nature conservation within the context of new development.*'

Non-Statutory Cherwell Local Plan 2011

- 12.12 Details of the interim policies relating to wildlife and ecology at the Site are outlined in **Table 4.1** with full details in **Appendix 4.1**. These policies promote the protection and enhancement of biodiversity. Policy EN22 states that '*Development proposals will be expected to incorporate features of nature conservation value within the site*' which should be '*retained and enhanced wherever possible. The use of planning conditions or planning obligations will be sought to secure their protection and management or the provision of compensatory measures where appropriate.*'
- 12.13 Policy EN25 states that, '*the presence of protected species is a material consideration in considering proposals for development. Policy EN25 seeks to protect them from development*

that would result in their loss or damage'. The Development proposals include measures to enhance biodiversity and are therefore consistent with these policies.

- 12.14 Policy EN26 (now incorporated in EN24) states that '*an important balance must be drawn and where improved access would be detrimental to wildlife interest, the interests of wildlife will be given a higher priority*'.
- 12.15 Policy EN37 of the Non-statutory Cherwell Local Plan states that "*In exercising its development control functions the council will welcome opportunities for countryside management projects where all important trees, woodland and hedgerows are retained*". This policy also seeks to protect ancient woodland from the adverse affects of development and enhance biodiversity where practicable.

Supplementary Planning Documents

- 12.16 The Supplementary Planning Document, adopted by Cherwell District Council in March 2007, includes principles and objectives including that '*significant trees in sound condition should be retained and should be supplemented by tree planting*'.

UK Biodiversity Action Plan

- 12.17 The UK Biodiversity Action Plan (UKBAP) was published in response to Article 6 of the Biodiversity Convention. The aims and objectives of the Plan are to preserve and enhance the biological diversity of the UK through implementation of Habitat Action Plans (HAPs) and Species Action Plans (SAPs) for habitats and species that are priorities for conservation in the UK. There are currently 65 habitats and 1149 species listed in the UKBAP. Several common but declining species are listed as Priority species on the UK BAP, including house sparrow, song thrush, common starling, stag beetle and also great crested newts and several species of bat.

The Local Biodiversity Action Plan

- 12.18 In addition to the UKBAP, Local Planning Authorities (LPAs) produce BAPs for action at the local level. The Oxford BAP includes hedgerows which are '*an important linking habitat found throughout Oxfordshire, of particular biodiversity value when they consist of a large proportion of native woody species, used by foraging birds and bats, dormice and a range of invertebrates (subject to the Hedgerow Regulations 1997)*'. In addition lowland calcareous grassland and lowland mixed deciduous woodland also have habitat action plans with targets for habitat condition.

Assessment Methodology and Significance Criteria

Establishing the Baseline Conditions

Desk Study and Phase 1 Habitat Survey

- 12.19 A desk study was undertaken in April and May 2010. This involved a data search for records of protected species and sites of conservation concern within 2km of the Site. In addition, all previous ecological survey results for the Site and Flying Field reported in the 2007 ES (Roger Evans Associates, 2007) were reviewed. These surveys were:

- Grassland Vegetation Survey (EPR, April 1997);
- Breeding Bird Survey (EPR, June 1998);

- Skylark and Vegetation Survey (EPR, June 1999);
- Bat Survey (EPR, May 2001);
- Badger Survey (EPR, May 2002);
- Bat Survey (EPR, May 2002);
- Breeding Bird Survey (EPR, May 2002);
- Breeding Bird Survey (Ecoscope, May 2002);
- Vegetation and Habitat Survey (Ecoscope, May 2002);
- Great Crested Newt Survey (EPR, May 2002)
- Great Crested Newt Survey (Bioscan, April 2005);
- Updating Vegetation Survey (EPR, Oct 2006);
- Bat Survey (EPR, Oct 2006 and July 2007);
- Updating Bird Survey (EPR, Oct 2006);
- Updating Badger Survey (EPR, Jan 2007);
- Updating Great Crested Newt Survey (EPR, May 2007); and
- Invertebrate Survey (EPR, June/July 2007).

12.20 An extended Phase 1 habitat survey was undertaken in April 2010 in accordance with JNCC (1993) and IEA (1995) guidelines. In addition, the locations of previously identified badger setts were checked during the survey. The badger survey included searching for evidence of recent activity including spoil heaps, clear runs, footprints, hairs and latrines in the vicinity of the sett.

12.21 Using the desk study data and the results of the Phase 1 habitat survey an assessment of the potential of the Site to support protected species and others of conservation concern was made. Full details of the methodology for the desk study and extended Phase 1 habitat survey are set out in the report by Thomson Ecology Ltd (ref. AWAT124/001/002) which can be found in **Appendix 12.1**.

Protected Species Surveys

12.22 As a result of the updated desk study and extended Phase 1 habitat survey, further surveys for great crested newts, reptiles and bats were considered necessary. These were carried out at the Site between June and September 2010 inclusive. Detailed survey methodologies are set out in the Thomson Ecology Ltd reports as follows:

- Great Crested Newt Survey, Ref. AWAT124/002/002 (**Appendix 12.2**);
- Reptile Survey, Ref. AWAT124/003/002 (**Appendix 12.3**); and
- Bat Surveys, Ref. AWAT124/004/002 (**Appendix 12.4**).

Evaluation of Ecological Resources

12.23 The method used to evaluate the ecological resources established through the desk study and surveys follows the Institute of Ecology and Environmental Management (IEEM) '*Guidelines for Ecological Impact Assessment in the United Kingdom*'. The conservation value, or potential value, of an ecological resource or feature is determined within a defined geographical context using the IEEM geographic scale which attributes features to the following geographic criteria:

- International;
- UK;

- National (i.e. England/Northern Ireland/Scotland/Wales);
- Regional;
- County (or Metropolitan - e.g. in London);
- District (or Unitary Authority, City, or Borough);
- Local or Parish;
- Zone of influence (ZOI) only (which might be the within the Site or a larger area); and
- Negligible.

12.24 For this assessment the zone of influence was considered to include the Site itself plus a 2km buffer from the boundary of the Site and is shown on **Figure 12.1**.

Habitats

12.25 The criteria for evaluating habitats are based on Ratcliffe (1977), Annex III of the Habitats Directive and a review of criteria used for the designation of Local sites. Each habitat identified during the survey is evaluated against these criteria. Reference is made to published lists of habitats of conservation concern to help establish the degree to which a habitat is rare or threatened, however, presence on such a list is not a criteria used in the evaluation. Where sites have a statutory or non-statutory designation, it is assumed that the evaluation has already been made and the value is set at the geographic scale according to its designation.

Species

12.26 The criteria used for evaluating the populations of species present on the site are also based on Ratcliffe (1977) and Annex III of the Habitats Directive and also the IUCN criteria categories and criteria. Where further investigation is required to establish population size, an estimate is made based on the likely maximum that the habitat can support, to provide a preliminary indication of nature conservation value. As with habitats, reference is made to published lists of species of conservation concern to help establish the degree to which a species is rare or threatened however, presence on such a list is not a criteria used in the evaluation.

Use of Primary and Secondary Criteria

12.27 In addition, in arriving at a level of value for an ecological receptor, the criteria set out below are used:

- Primary Level:
 - Rarity
 - Proportion of total
 - Level of threat
 - Native Status
- Secondary Level:
 - History of presence
 - Importance for fauna
 - Links to other populations/ degree of fragmentation
 - Cultural interest/aesthetic appeal
 - Economic

12.28 The primary criteria are considered at each geographic scale so that, for example, a small population of a native species that is rare in the county but relatively common and stable in the region could be considered important at the county level. Once a rough level of value is derived from the primary criteria, the secondary criteria are considered and may lead to a slight increase or decrease in the level of value assigned to a given population.

Significance Criteria

12.29 According to IEEM guidance an ecologically significant impact is defined as an impact (adverse or beneficial) on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species determined on the geographical scale. A degree of probability is given with each assessment based on the four-point IEEM scale:

- Certain/near certain – probability estimated at 95% chance or higher;
- Probable/likely – probability estimated between near-certain and 50:50;
- Unlikely – probability estimated less than 50:50 but higher than 5%;
- Extremely unlikely – probability estimated at less than 5%.

12.30 The impact significance criteria used in the assessment is given in **Table 12.1**.

Table 12.1: Significance Criteria for Ecological Assessment

Significance	Description of Criteria
Adverse Impact of Substantial Significance	Significant negative change on existing nature conservation value up to an international level would arise from the Development.
Adverse Impact of Moderate Significance	Significant negative change on existing nature conservation value up to a county (Metropolitan) level would arise from the Development.
Adverse Impact of Minor Significance	Significant negative change on existing nature conservation value up to a local level would arise from the Development.
Insignificant	No significant change to existing nature conservation value would arise from the Development.
Beneficial Impact of Minor Significance	Significant positive change on existing nature conservation value up to a local level would arise from the Development.
Beneficial Impact of Moderate Significance	Significant positive change on existing nature conservation value up to a county (Metropolitan) level would arise from the Development.
Beneficial Impact of Substantial Significance	Significant positive change on existing nature conservation value up to an international level would arise from the Development.

Assumptions and Limitations

12.31 During the great crested newt survey, difficulties in surveying caused by netting over some of the waterbodies and high duckweed and leaf cover may have led to an underestimation of the population (see Great Crested Newt Survey report in **Appendix 12.3**).

- 12.32 Bat surveys that were carried out were a rapid assessment method of allocating potential to buildings and transects were undertaken to identify areas of greatest bat activity in order to target survey effort most efficiently in order to inform the EIA. This methodology was agreed with CDC's Ecological Officer.
- 12.33 Information on the areas of vegetation and numbers of trees to be lost or planted were not available however the landscape principles were considered.

Baseline Conditions

Designated Sites

- 12.34 The desk study identified two statutory designated sites within 2km of the Site boundary, Ardley Trackways SSSI which is designated solely for geological features and Ardley Cutting and Quarry SSSI which is designated for calcareous grassland. Two sites (RAF Upper Heyford Airfield and Rush Spinney County Wildlife Sites (CWS) with non-statutory designations for nature conservation also lie within 2km of the Site perimeter (see **Table 12.2** and **Figure 12.1**).

UK BAP Habitats Outside of Designated Sites

- 12.35 UK BAP Priority Habitats and Local BAP habitats, located within 2km of the Site boundary are described in **Table 12.3** and shown in **Figure 12.1**.

On-Site Habitats Present at the Site in 2010

- 12.36 During the updated extended Phase 1 habitat survey of April 2010 the field survey found that the majority of the Site comprised similar habitats to those present in earlier surveys, in particular:
- Scattered scrub;
 - Scattered broadleaved trees;
 - Scattered coniferous trees;
 - Standing water;
 - Amenity grassland; and
 - Buildings and hardstanding.
- 12.37 In addition to the habitats identified in earlier surveys, the following habitats were also recorded in 2010:
- Dense scrub/ tall ruderal vegetation;
 - Species-rich hedgerow;
 - Species-poor hedgerows;
 - Species-poor hedgerows with trees;
 - Running water;
 - Introduced shrub including invasive non-native species; and
 - Coarse grassland.
- 12.38 These habitats are shown on **Figure 12.2** except for standing water which is shown on **Figure 12.3** and their nature conservation value are given in **Table 12.4**.

Table 12.2: Designated Sites Within 2km of the Site

Site	Grid reference	Area (ha)	Distance from Site (km)	Description and Justification of Baseline Assessment	Nature Conservation Value
National Sites (SSSIs)					
Ardley Cutting and Quarry SSSI	SP540269	40.13	1.9	A site located along the London to Birmingham railway line, of geological interest for its exposed Jurassic rocks and of biological interest for its limestone grassland, scrub, ancient woodland, and wetland habitats. The SSSI is important for invertebrates, particularly butterflies of which a number of locally rare species can be found. The limestone grassland present on the railway cutting and quarry is the primary feature of ecological value on the site. This grassland contains a diverse invertebrate fauna and supports a number of butterfly species that are uncommon across the UK, including Duke of Burgundy <i>Hamearis lucina</i> and small blue <i>Cupido minimus</i> . This type of grassland has increased from 500ha to 715ha in Oxfordshire from 1998-2008. The site also supports part of a large population of great crested newts (<i>Triturus cristatus</i>)	National
Local Sites (CWSs)					
RAF Upper Heyford Airfield County Wildlife Site	SP519269	28.0	0.6	A large area (35ha) of grassland with some species-rich areas included. Identified by the Berks, Bucks. and Oxon Wildlife Trust as important for its botanical and ornithological interest. Notable plant species found in the eastern area include bee orchid <i>Ophrys apifera</i> and dwarf thistle <i>Cirsium acaule</i> . In addition, a large number of skylark <i>Alauda arvensis</i> have been recorded breeding and curlew <i>Numenius arquata</i> , corn bunting <i>Miliaria calandra</i> , and tree sparrow <i>Passer montanus</i> have also been noted.	County
Rush Spinney County Wildlife Site	SP494256	1.6	0.8	Identified by the Berks, Bucks and Oxon Wildlife Trust as important for its botanical interest. A small area of rare marshy habitat adjacent to the Oxford Canal. Southern marsh orchid <i>Dactylorhiza praetermissa</i> , common spotted orchid <i>Dactylorhiza fuchsii</i> , ragged robin <i>Lychnis flos-cuculi</i> and marsh marigold <i>Caltha palustris</i> are amongst the characteristic wetland species present on the site. The hybrid sedge <i>Carex c. subgracilis</i> , which has only been found in scattered locations in Britain, is also present on-site. This marsh is an uncommon habitat in Oxfordshire and a priority for conservation.	County

Table 12.3: Biodiversity Action Plan Habitats within 2km of the Site (Source: Nature on the Map)

Habitat Name and Type	Grid Reference	Distance to Site (km)	Description and Justification of Baseline Assessment	Conservation Value
Coastal and floodplain grazing marsh	SP 494257	0.8	The coastal and floodplain grazing marsh identified in the desk study as within 0.8km of the Site is based around the River Cherwell floodplain. This habitat type has suffered a decline of 40-60% in the past 60 years with 170,000ha remaining in England, 355 ha of which is in Oxfordshire with 200ha on one site.	District
Lowland mixed deciduous woodland	SP 523238	1.5	According to Oxfordshire Wildlife and Landscape Study (Ref 12.22) Oxfordshire is 'one of the least wooded counties in southern England, as so much of its ancient woodland would have been cleared for agriculture a long time ago.' Remnants of this habitat type are present shown on Figure 12.1 over 1.5km from the Site.	Local

Table 12.4: Results of the Phase 1 Habitat Survey and Inspection of Badger Setts at the Site in 2010

Habitat Number and Type	Description	Nature Conservation Value of Habitat	Justification of Baseline Assessment
SS - Scattered Scrub	The south-east area of the Site has had little management in the last few years. As a result, a number of common shrub species have begun to flourish. Hawthorn (<i>Crataegus monogyna</i>) was frequent with bramble (<i>Rubus fruticosus</i> agg.) and occasional elder (<i>Sambucus nigra</i>) scrub. This habitat appears to have developed since the previous extended Phase 1 habitat survey.	Negligible	The habitat is of low diversity in terms of floral species and is dominated by common and widespread species of native shrubs. The habitat is also relatively recently formed and easily recreated. In addition, the habitat is relatively common across the Site and the wider area and as such the habitat is considered to be of negligible nature conservation value.

Habitat Number and Type	Description	Nature Conservation Value of Habitat	Justification of Baseline Assessment
SBW - Scattered Broadleaved Trees	There are semi-mature and mature broadleaved trees scattered throughout the Site. Silver birch (<i>Betula pendula</i>) was frequent with occasional sycamore (<i>Acer pseudoplatanus</i>), horse chestnut (<i>Aesculus hippocastanum</i>), beech (<i>Fagus sylvatica</i>) cherry (<i>Prunus avium</i>) and willow (<i>Salix</i> sp.) all occasionally recorded. This habitat appears to be similar to that previously present.	Zone of Influence	The scattered broadleaved trees are of native and non-native planted species and low diversity however their maturity and location provides additional value to these common and widespread species. Bats have been found to be present at the Site and they could be using these trees, especially those linearly arranged, or close to buildings.
SCW - Scattered Coniferous Trees	A number of coniferous tree species have also been planted throughout the Site. Leyland cypress (<i>Cupressocyparis x leylandii</i>) is frequently found planted in rows to boundaries. Larch (<i>Larix decidua</i>) and Scot's pine (<i>Pinus sylvestris</i>) were also recorded within the communal areas of the Site. This habitat appears to be similar to that recorded previously.	Negligible	This habitat is common and widespread in the area and species-poor comprising and non-native species small in area and re-creatable. Again their maturity adds to their nature conservation value.
DS/TR1 - Dense Scrub/tall Ruderal Vegetation Mosaic	Around half of the area adjacent to the caravan park to the south east of the Site comprises dense scrub and tall ruderal vegetation covering an area of approximately 0.22ha. Thick bramble dominates with frequent common nettle (<i>Dioica urtica</i>) abundant cleavers (<i>Galium aparine</i>) and locally frequent hedge garlic. Cherry (<i>Prunus</i> sp) and goat willow (<i>Salix caprea</i>) are scattered throughout.	Negligible	This small area of habitat is of low species diversity, dominated by bramble, and is a common and widespread habitat frequent in the locality with larger and more species-diverse examples. The habitat is also likely to have developed relatively recently and is readily re-creatable.
SW - Standing Water	There are 19 water bodies scattered throughout the Site, (see Figure 12.3) as previously identified. In total, these water bodies cover an area of 326m ² . These comprise emergency water supply (EWS) tanks and interceptor tanks which are concrete-sided with netting over the surface of the majority. Aquatic macrophytes are limited but include common duckweed (<i>Lemna minor</i>).	Negligible	These waterbodies are man-made concrete constructions of little or no conservation value, supporting no macrophytes and easily recreatable. Great crested newts were found to be using them.
RW1 - Running water	A small stream runs from north to south through the centre of the part of the Site to the east of the caravan park, south of	Negligible	This is a small section of shallow running water which lacks macrophytes, thus has very low species diversity. The habitat is

Habitat Number and Type	Description	Nature Conservation Value of Habitat	Justification of Baseline Assessment
	Camp Road. The stream is shallow (between 10 and 20cm in depth at the time of the Phase 1 survey update). As this stream passes through the Site (approximately 75m in length) it is over-shadowed by bramble and common nettle and, probably as a result of this shading, no aquatic macrophytes were present in this water course.		common in the locality with better examples of this habitat in the surrounding area. Shading from ruderal and scrub vegetation reduces its nature conservation value further.
IS - Introduced Shrub	Introduced shrub is found in planted beds throughout the Site in small parcels within and around the offices and residential properties. Hebe (<i>Hebe</i> sp.) mahonia (<i>Mahonia</i> sp.), spotted laurel (<i>Aucuba japonica</i>) and garden rose (<i>Rosa</i> sp.) were frequently recorded. Cotoneaster (<i>Cotoneaster horizontalis</i>), listed on Schedule 9 of the WCA was present as a small hedge within introduced shrub beds in the north of the Site (see TN1 on Figure 12.2). To the southeast and southwest of the Site introduced shrubs have proliferated. Butterfly bush (<i>Buddleja davidii</i>) and cherry laurel (<i>Prunus laurocerasus</i>) were frequently recorded.	Negligible	Introduced shrub is present in small parcels at the Site and has been noted locally in the gardens of adjacent houses not proposed for demolition as well as villages close by so is common and widespread. The habitat is dominated by non-native species and is common and widespread at every geographic level with better examples within the surrounding area.
AM - Amenity grassland	Amenity grassland covers a large proportion of the Site (approximately 32.6ha) in both communal open space and residential gardens. Perennial rye-grass (<i>Lolium perenne</i>) is abundant with red fescue (<i>Festuca rubra</i>) and Yorkshire-fog (<i>Holcus lanatus</i>) occasional. Herb species recorded include occasional creeping buttercup (<i>Ranunculus repens</i>), daisy (<i>Bellis perennis</i>), and common field speedwell (<i>Veronica persica</i>). Lesser celandine (<i>Ranunculus ficaria</i>) and ground-ivy (<i>Glechoma hederacea</i>) were also recorded.	Negligible	This type of habitat is common and widespread within the locality with many larger and more species-rich examples. Its intensively-managed nature and low species-diversity reduces its nature conservation value further.
COG -Coarse Grassland	This habitat has evolved from amenity grassland as a result of minimal recent management of areas in the south-east of the Site. Coarse grassland covers approximately 4.4ha. This lack of management has allowed a number of rank grassland species to become dominant. Cock's-foot	Negligible	This habitat is species-poor, small and fragmented and has developed very recently; and is common and widespread at all geographical levels. The species are a combination of coarse grasses and species of disturbed areas predominantly Cock's foot (<i>Dactylis glomerata</i>), Yorkshire fog (<i>Holcus lanatus</i>) and

Habitat Number and Type	Description	Nature Conservation Value of Habitat	Justification of Baseline Assessment
	<i>(Dactylis glomerata)</i> was abundant with frequent false oat-grass (<i>Arrhenatherum elatius</i>). Broadleaved-dock (<i>Rumex obtusifolius</i>), creeping cinquefoil (<i>Potentilla reptans</i>) and dove's-foot crane's-bill (<i>Geranium molle</i>) were also recorded.		common nettle (<i>Urtica dioica</i>) which, as larger areas of similar species are abundant in surrounding countryside are of negligible nature conservation value.
COG/TR1 - Coarse grassland/tall Ruderal Vegetation Mosaic	Coarse grassland tall ruderal vegetation mosaic covering approximately 0.01ha occurs adjacent to the DS/TR1 habitat. Grass species recorded include abundant cock's foot and Yorkshire fog. Ruderal species include abundant common nettle however, access was difficult in the west of this Site so the species list was limited.	Negligible	The common and widespread nature of this type of habitat, its small size and the low diversity of including false oat grass species (<i>Arrhenatherum elatius</i>), Yorkshire fog (<i>Holcus lanatus</i>), with Dove's foot geranium (<i>Geranium molle</i>) and cow's parsley (<i>Anthriscus sylvestris</i>), along with its fragmented nature and re-creatability give it little nature conservation value.
PH1-PH11 Species-poor Hedgerow	Species-poor hedgerow is present throughout the Site but was not previously recorded. PH1 is dominated by beech (<i>Fagus sylvatica</i>) with rare instances of hazel, hawthorn and sycamore; PH2 is dominated by garden privet (<i>Ligustrum ovalifolium</i>) with occasional cherry laurel (<i>Prunus laurocerasus</i>). Ivy (<i>Hedera helix</i>) is abundant in the ground layer of the hedgerow; PH3 extends north from PH2 and has a similar vegetative composition to that of PH2 with garden privet dominant; PH4 and 6-11 extends along the both sides of Camp Road from east to west across the Site. This well managed, low hedge consists of frequent hawthorn and occasional sycamore. The ground layer of this hedgerow has abundant ivy and rarely broad leaved dock (<i>Rumex obtusifolius</i>); PH5 is located in the north-west of the Site and extends further west outside of the Site boundary. Elder (<i>Sambucus nigra</i>) is frequent with occasional hawthorn and bramble. Both ivy and common nettle were frequently recorded within the under-storey of this hedgerow.	Negligible	This habitat is intensely managed and cut frequently to a low level and is generally species-poor. Much better examples are found in the agricultural landscape surrounding the Site and at the wider local and district level. It could be recreated if necessary. Although likely to meet the criteria for UKBAP and Habitats of Principal Importance, their small size, intensively-managed nature and low species diversity reduce their value to nature conservation.
Species-rich Hedgerow –	Species-rich hedgerow is to the south east boundary (RH1), and to the east of the area adjacent to the caravan park	Zone of influence	This habitat is uncommon on the Site, being less intensively managed than other examples of native hedgerows but

Habitat Number and Type	Description	Nature Conservation Value of Habitat	Justification of Baseline Assessment
RH1 and RH2	<p>(RH2) both adjacent to farmland and of similar composition. The hedges comprise frequent elm (<i>Ulmus procera</i>), hawthorn, elder, dog rose (<i>Rosa canina</i>) and occasional blackthorn (<i>prunus spinosus</i>) and hazel and rarely sycamore. Ivy is frequent within the ground layer of the hedgerow along with ruderal species.</p>		<p>common and widespread at all geographical levels. Its location adjacent to farmland means it forms part of a network of hedgerows in the wider landscape. It could be recreated however its maturity would take time to replicate. It fits the criteria of UK BAP Priority Habitat.</p>
PHT1-3 Species-poor Hedgerow with Trees	<p>Three lengths of species-poor hedgerow with trees are present at the Site: PHT1 extends from north to south on the eastern boundary of the Site adjacent to an arable field and north of Camp Road. PHT2 and PHT3 are on the southern and south-eastern sections of the Site, also adjacent to arable farmland. Elm (<i>Ulmus procera</i>) is frequent with occasional elder, dog rose (<i>Rosa canina</i>) and hawthorn. Ivy is occasional to frequent within the ground layer of the hedgerow.</p>	Zone of influence	<p>The same applies to this habitat as to the species poor hedgerows described above. However, their less intensively-managed nature makes them more valuable as they are taller and wider forming a larger habitat by nature of their size. Although re-creatable it would take some years to achieve the same size, although further examples of this habitat occur within the wider local and district area. As with the other hedgerows on Site, this habitat is likely to meet the criteria for being a UK BAP Priority species and a Habitat of Principal Importance in the UK.</p>
B and HS - Buildings and Hard-standing	<p>The remainder of the Site comprises buildings and hard standing totalling an area of approximately 42.8ha. The combination of buildings still in use and disused does not appear to have altered since the previous surveys were undertaken however, the buildings in the south-east of the Site have become increasingly dilapidated since falling into disuse. The hard-standing on the Site includes roads and pavements.</p>	Negligible	<p>The buildings are man-made, of brick, widespread and common on this Site and elsewhere at all geographic levels as well as being re-creatable. Bats are known to use these buildings.</p>

- 12.39 Cotoneaster (*Cotoneaster horizontalis*) is present in the form of a small clipped hedge north of Camp Road (see target note TN1 on **Figure 12.1**). This is listed as a non-native species from April 2010 under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). The nature conservation value of invasive plant species is negligible.

Fauna

Reptiles

- 12.40 The coarse grassland in the south-east of the Site and the dense scrub and tall ruderal vegetation in the Site adjacent to the Caravan Park have developed the potential to support populations of reptiles. Surveys were carried out in June 2010 to best practice guidelines (HGBI, 1998) to establish the presence / likely absence of reptiles. No reptiles were found to be present at the time of the survey (see **Appendix 12.2**) and as such it is considered likely that they are absent. The nature conservation value of the Site for reptiles is **Negligible**.

Great Crested Newts

- 12.41 The water tanks spread across the Site (see **Figure 12.3**) have been found to support a medium population of great crested newts in surveys undertaken in 2002, 2005 and 2006/7 since one individual was found in a tank (the tank number is not recorded) in May 2002. Results over the period 2005 to 2010 are shown in **Table 12.5**. Full results of the 2010 survey are provided in the Great Crested Newt Survey report in **Appendix 12.3**.

Table 12.5 Summary of Great Crested Newt Survey Results 2005 to 2010

Tank	Present 2005	Present 2007	Present 2010	Peak Count 2007	Peak Count 2010
1	✓	✓	✓	8	25
2	✗	✓	✓	1	1
3	✓	✓	✗	2	0
17	✗	✗	✗	0	0
19	✗	✗	✗	0	0
A	✗	✓	✗	0	0
B	✗	✓	✓	6	5
C	✗	✓	✗	1	0
I	✗	✗	✗	0	0
J	✗	✗	✗	0	0
K	✗	✗	✗	0	0
L	✗	✗	✗	0	0

Note: ✓ = confirmed; ✗ = likely to be absent

- 12.42 The results of the 2010 surveys showed an increase in the number of great crested newts present overall with three of the 11 waterbodies surveyed (1, 2 and B) found to support great crested newts. Eggs were also present. Compared with the five waterbodies containing great crested newts in 2007 and two in 2005, this may demonstrate how great crested newts move between ponds in different years. Waterbodies 17, 19, I, J, and K have not been found to support great crested newts in any of the three surveys in the past 8 years.
- 12.43 The peak count in 2010 was 25 (waterbody B) which indicates a medium population of great crested newts are present.
- 12.44 The population of great crested newts in this part of the Site, considered together as a metapopulation, was classed as medium in the 2007 surveys. It was considered to be related to the two other populations (assessed as medium and large) present on the adjacent Flying Field. These populations may also be connected to the known 'large' population of great crested newts present at Ardley Quarry SSSI, approximately 0.8km to the north east of the Flying Field as suggested in the 2007 ES. Records also show that great crested newts have been found 1km from the Site and it is therefore likely that a low level of dispersal to and from these sites could occur in the form of dispersing juvenile newts which tend to cover a greater distance than the adults.
- 12.45 Great crested newts have suffered a major decline in status in the UK over the last century with many natural breeding sites lost during and since World War II and an increasingly fragmented landscape as a result of agricultural changes and an increase in development. Although great crested newts are relatively widespread their habitats are declining in quality, size and connectivity and the lack of habitat in the area could explain the use of largely unsuitable waterbodies by great crested newts at the Site.
- 12.46 Great crested newts have been found in 14 out of 34 10km grid squares in Oxfordshire since 1990 however fragmentation is a cause of decline so the closeness of the population on this Site to three other populations including an SSSI could be significant.
- 12.47 The population of great crested newts is considered to be of **District Value** for Nature Conservation.

Bats

- 12.48 A suite of surveys in 2010 was undertaken in order to confirm the presence of the two species of bat already identified as roosting at the Site in 2001 to 2007, namely, common pipistrelle (*Pipistrelle pipistrellus*) and brown long-eared (*Plecotus auritus*). The full results can be found in the Bat Survey report in **Appendix 12.4**. The surveys identified 17 buildings on the Site with high potential, 13 buildings with medium potential and 44 buildings with low potential for bats which are proposed for demolition (see **Figure 12.4a**).
- 12.49 A number of buildings on the Site support roosting bats (see **Table 12.6**). During the surveys, four further species of bat were recorded as foraging and commuting on-Site:
- Common pipistrelle;
 - Brown long-eared;
 - Soprano pipistrelle (*Pipistrellus pygmaeus*);
 - Noctule (*Nyctalus noctula*);
 - Leisler's (*Nyctalus leisleri*); and
 - Serotine (*Episectus serotinus*).

- 12.50 The areas of highest bat activity are shown on **Figure 12.4b** and it is apparent from these surveys conducted in 2010 that bats are currently using the Site for roosting, foraging and commuting. In particular, the scattered trees around roost buildings (indicated on **Figure 12.4b**) and the avenues of trees and hedgerows that act as commuting and foraging routes are of particular importance and could be part of a network used by bats in the larger countryside.
- 12.51 The common pipistrelle maternity roosts (33 bats in 2007) and soprano and common pipistrelles and brown long-eared roosts present, with the high activity of these species of bat, particularly the pipistrelles, at the Site in the 2010 surveys suggest that bats are established at the Site and continue to roost. Soprano and brown long-eared bats are UK BAP Species of Principal Importance, listed under section 41 of the NERC Act.

Table 12.6: Locations of Bat Roosts at the Site from 2002 till 2010

Building	Roost Type (likely roost type for 2010)	Evidence of Bats 2002-2007	Evidence of Bats 2010
74	Individual (not being demolished)	One common pipistrelle and three brown long-eared bats emerged October 2006	Not surveyed
125	Individual	Single long-eared bat dropping	-
133	Maternity pipistrelle Roost common	Numerous pipistrelle droppings; 24 common pipistrelles entered 2002; 33 common pipistrelles emerged 2006	-
146	Individual	Two bat droppings	-
446	Not known	None recorded	One common pipistrelle seen to return
455	Individual	No details available	-
457	Individual	Two common pipistrelles emerged October 2006	-
474	Not known	None recorded	One common Pipistrelle seen emerging
485	Individual	Single individual present 2002	One common Pipistrelle seen to return
598	Not known	None recorded	One soprano pipistrelle seen to emerge from building 598

Common and Soprano Pipistrelle Bat

- 12.52 During the 2010 surveys two common pipistrelle roosts (buildings 446 and 474) and one soprano pipistrelle roost (building 598) were identified in addition to those identified in earlier surveys. Pipistrelle bats (common and soprano) are the most common and abundant species of bat in the UK but numbers have declined in the past decade. Soprano pipistrelle is a UK Biodiversity Action Plan Priority Species. Both pipistrelle species are known to roost in buildings and are found in a number of habitats many of which are common in the County. A

maternity roost in Building 133 was identified in 2006. Of the 34 10km grid squares that Oxfordshire falls fully or partly within, records for common pipistrelle occur within 16 and for soprano pipistrelle within 20.

- 12.53 The population of common and pipistrelle bats at the Site is considered to be of **District Value** for Nature Conservation.

Brown Long-eared Bat

- 12.54 Brown long-eared bats are common and widespread in the UK with a population of around 200,000 however this species has been declining, but with a recent increase in colony counts, although no significant trend was found in the National Bat Monitoring Project 2008. Brown long-eared bats roosts were identified in buildings at the Site in 2006 (see **Table 12.6**) and were commuting and foraging at the Site in 2010. Of the 34 10km grid squares that Oxfordshire falls fully or partly within, brown long-eared bats records occur within 28.

- 12.55 Brown long-eared bats were roosting at the Site in 2006 and are present in 2010 indicating that there is a colony still roosting at the Site. The population of brown long-eared bats at the Site is of **District Value** for Nature Conservation.

Noctule Bat

- 12.56 Noctule bats are generally uncommon but around 45,000 may be present in England. Noctules roost in trees, and use woodland, pasture and water for foraging. Noctule bats are recorded within 16 of the 34 10km grid squares that Oxfordshire falls fully or partly within. They may be commuting to and from nearby woodland (see **Figure 12.2**) using the hedgerows which connect it with the Site. The population of noctule bats at the Site is considered to be of **Negligible** for Nature Conservation.

Serotine Bat

- 12.57 One serotine bat was recorded flying over the Site but this species is not considered likely to be using the Site for roosting. Serotine bats are limited mostly to southern England and south-east Wales with around 15,000 individuals and have been recorded in 12 of the 34 10 km grid squares which Oxfordshire falls within. The population of serotine bats at the Site is considered to be of **Negligible Value** for Nature Conservation.

Leislars

- 12.58 Two Leislars bats were recorded flying over the Site but this species is not considered likely to be using the Site for roosting. Leislars are rare but widespread in England and southern Scotland occurring in 5 of the 34 10km grid squares which Oxfordshire falls within. The population of serotine bats at the Site is considered to be of **Negligible Value** for Nature Conservation.

Badger

- 12.59 An active badger sett with several entrances was recorded off Site under the road at Chilgrove Drive to the east of the Site (see **Appendix 12.1**). Badgers were recorded previously within 2km of the Site. Two badgers were observed crossing the Site at night. Given the common and widespread occurrence of badgers, the limited activity on-Site and the presence of suitable alternative habitat in the immediate and wider surrounding area, the nature conservation value of the Site for badgers is **negligible**.

Birds

- 12.60 Six bird species were recorded on Site during the Phase 1 habitat survey which are shown in **Table 12.7**. It is likely that these bird species are nesting on the Site as suitable nesting habitat is present.
- 12.61 Bird species recorded nesting on-Site during the 2006 breeding bird survey are shown in **Table 12.8**. In addition to the species recorded nesting on-Site during the 2006 breeding bird survey a further eight species were recorded on-Site but not nesting (see **Table 12.9**).

Table 12.7: Birds Incidentally Recorded on Site during Phase 1 Habitat Survey, 2010

Common Name	Species Name	Designation
Blackbird	<i>Turdus merula</i>	Green list
Chaffinch	<i>Fringilla coelebs</i>	Green list
Great tit	<i>Parus major</i>	Green list
Jay	<i>Garrulus glandarius</i>	Green list
Pied wagtail	<i>Motacilla alba</i>	Green list
Robin	<i>Erithacus rubecula</i>	Green list

Table 12.8: Birds Nesting at the Site in 2006

Common Name	Species Name	Designation
Starling	<i>Miliaria calandra</i>	Red list, UKBAP
House Martin	<i>Emberiza citrinella</i>	Amber list, UKBAP
Song thrush	<i>Alectorus rufa</i>	Red list, UKBAP
House sparrow	<i>Carduelis cannabina</i>	Red list, UKBAP
Wheatear	<i>Oenanthe oenanthe</i>	Amber list
Yellow wagtail	<i>Motacilla flava</i>	Red list, BAP

Table 12.9: Birds Recorded on the Site (but not Nesting) in 2006

Common Name	Species Name	Designation
Corn bunting	<i>Miliaria calandra</i>	Red list
Yellow hammer	<i>Emberiza citrinella</i>	Red list, UK BAP
Red-legged partridge	<i>Alectorus rufa</i>	No status
Linnet	<i>Carduelis cannabina</i>	Red list, UK BAP
Green woodpecker	<i>Picus viridis</i>	Amber list
Wood warbler	<i>Phylloscopus sibilatrix</i>	Amber list, UK BAP
Whitethroat	<i>Sylvia communis</i>	Amber list
Grey wagtail	<i>Motacilla cinerea</i>	Amber list

12.62 The majority of the birds recorded on-Site during the 2006 and 2010 survey are relatively widespread and common however several of them are in decline. Several of the bird species recorded as nesting on-Site in 2006 are UK BAP Priority species and included on either the amber or red list of birds, they are likely to be relatively common in the local and county area where suitable habitat exists. Furthermore, the species recorded as not nesting in 2006 are all farmland birds and as such are likely to be nesting in the adjacent farmland habitat rather than within the Site itself. Therefore, the Site is concluded to be of **zone of influence** value for birds.

Incidental Faunal Species

12.63 Grey squirrel and rabbit droppings, indicating their presence, were recorded at the Site during the Phase 1 habitat survey. Both these species are very widespread and common. The nature conservation value of the Site for these two species is therefore **negligible**.

Impact Assessment

Demolition and Construction Phase

Loss of Hedgerows

12.64 The demolition and construction phase of the proposed Development would require the Site clearance including the removal of sections of hedgerow which are UK BAP habitats (RH1 and RH2 and PHT1-3). The impacts are characterised in **Table 12.10**.

Table 12.10: Impacts of Demolition and Construction Phase on Hedgerows (UK BAP Habitat)

Beneficial/Adverse	Adverse
Magnitude	The Development could result in the loss or partial loss of up to 5 sections of UK BAP habitat.
Extent	Within the Site boundary only
Duration	The impact would be permanent
Reversibility	Reversible with habitat creation
Frequency	Once
Timing	During demolition and construction between 2011 and 2016

12.65 In the absence of mitigation, the demolition and construction phase would lead to the loss or partial loss of up to five sections of hedgerow fitting the criteria of UKBAP Priority Habitat. This is a certain/near certain **adverse impact of minor significance**.

12.66 The species-rich hedgerows (**RH1 and 2 on Figure 12.2**) and the species-poor hedgerow with trees (PHT1-3 on **Figure 12.2**) are UK BAP habitat is listed under section 41 of the NERC Act and under government planning policy PPS9) and a habitat of principal importance for the conservation of biodiversity as listed by the Secretary of State. Under PPS9 the local planning authority should conserve these habitat types. Furthermore, Policy C2 of the non-statutory local plan 2011 requires that features of biodiversity value should be retained and enhanced wherever possible and policy SD8 of the draft core strategy aims to protect and enhance features of value to the green infrastructure. Mitigation measures to conserve and enhance

hedgerows at the Site are recommended later in this Chapter and if implemented should allow the Development to comply with the relevant legislation and planning policies.

Loss of Trees

- 12.67 The Development would result in the loss of up to 200 trees and groups of trees at the Site. Dead or dying trees are proposed for removal according to BS 5837:2005. Conifer trees are illustrated as being replaced by native trees over a period of years, whilst other small patches of tree and shrub may be lost to Development. The impacts are characterised below in **Table 12.11**.

Table 12.11: Impacts of the Demolition and Construction Phase of the Development on Trees (Zone of Influence Value)

Beneficial/Adverse	Minor Adverse Significance
Magnitude	The Development would result in the loss of up to 200 trees and groups of trees at the Site. There is a proposed loss of scattered groups of trees around the Site including Category R trees to be removed for health and safety reasons following BS 5837:2005 Trees in relation to construction. Conifers are to be replaced over a period of 20 years.
Extent	Within the Development Site boundary
Duration	Permanent
Reversibility	Reversible with tree planting
Frequency	Once
Timing	During demolition and construction between 2011 and 2016 and beyond for the coniferous species

- 12.68 In the absence of mitigation, trees removed from the Site would result in the loss of up to 200 trees or groups of trees which would lead to the loss of semi-natural habitat of zone of influence value. This is a probable **adverse impact of minor significance**.
- 12.69 Policy EN35 of the non-statutory local plan 2011 requires the retention of trees important to the character or appearance as a result of their ecological value. Mitigation measures are recommended later in this Chapter to offset the loss of trees at the Site which if implemented would allow the Development to comply with Policy EN35.

Great Crested Newts

- 12.70 The demolition and construction phase of the Development could have an impact on great crested newts at the Site through the following mechanisms:
- direct mortality and injury; and
 - loss of breeding and terrestrial habitat.

Direct Mortality and Injury

- 12.71 The direct impacts of mortality and injury on great crested newts during the demolition and construction phase is characterised in **Table 12.12**.

Table 12.12: Impact on Great Crested Newts From Direct Mortality and Injury

Magnitude	Site clearance would result in the potential killing or injury of a medium population of great crested newts at the Site of around 30 individuals.
Extent	Within 250m of breeding waterbodies
Duration	Permanent
Reversibility	Irreversible, although population could recover if suitable habitat is available
Frequency	Once
Timing	During the demolition and construction phase 2011-2016

- 12.72 The demolition and construction phase would include clearance of the majority of the Site which could lead to the killing and injury of up to 30 great crested newts. In the absence of mitigation, the demolition and construction phase would have a certain/near certain **adverse impact of moderate significance** on great crested newts.
- 12.73 Without mitigation and licensing, the Development would contravene legislation with respect to the killing and injury of great crested newts, in particular the Conservation of Habitats and Species 2010. The great crested newt is also a UKBAP Priority species and a Species of Principal Importance under the NERC Act 2006 and the local planning authority should protect this species from the adverse effects of Development in accordance with PPS9.
- 12.74 Destruction of breeding ponds would also contravene the non-statutory Cherwell Local Plan 2011 Policy EN25 which should not allow development which would adversely affect any species protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and aims to protect European protected species and the saved Policy C4 of the Cherwell Local Plan 1996 aims to protect habitat and species on new developments.
- 12.75 Measures are recommended in the Mitigation section to prevent killing and injury of great crested newts during this phase of the Development at the Site which, if implemented should allow the Development to comply with relevant legislation and planning policy with regard to great crested newts. Mitigation for great crested newts is covered by a strict licensing procedure.

Habitat Loss

- 12.76 The direct impacts of the loss of great crested newts habitat during the demolition and construction phase is characterised in **Table 12.13**.
- 12.77 In the absence of mitigation, the loss of aquatic and terrestrial habitat used by great crested newts would have a certain/near certain **adverse impact of moderate significance** on great crested newts.
- 12.78 Without mitigation, the Development would contravene legislation with respect to great crested newts, as in detailed above. Development without mitigation would also contravene the non-statutory Cherwell Local Plan 2011 Policy EN25 which should not allow development which would adversely affect any species protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and aims to protect European protected species. The saved Policy C4 of the Cherwell Local Plan 1996 aims to protect habitat and species on new developments.

Table 12.13: Impact of the Loss of Great Crested Newt Habitat

Beneficial/Adverse	Adverse
Magnitude	The loss of up to 12 waterbodies in (or within 250m of the Site) and the loss of an estimated 800m ² of suitable terrestrial habitat and up to 46800m ² of coarse grassland and 250m ² of dense scrub sub-optimal terrestrial habitat which is separated by unsuitable habitat but may potentially be used by between 25 and 40 great crested newts. The impact may extend to all areas of suitable habitat within the Site boundary but is likely to be confined to within suitable habitat close to 10 of the tanks and up to 250m from 1 and B.
Extent	Within 250m of the waterbodies within suitable habitat, possibly extending to unsuitable habitat when great crested newts are commuting
Duration	Permanent
Reversibility	Reversible with habitat creation
Frequency	Once
Timing	During the demolition and construction phase 2011-2016

- 12.79 Mitigation measures are recommended later in this Chapter to prevent loss of breeding and terrestrial habitat suitable for great crested newts during the demolition and construction phase which, if implemented, should allow the Development to comply with relevant legislation and planning policy with regard to great crested newts. Mitigation for great crested newts is covered by a strict licensing procedure.

Bats

- 12.80 The demolition and construction phase of the Development could have an impact on bats at the Site through the following mechanisms:
- direct mortality and injury; and
 - loss of breeding and foraging habitat.

Direct Mortality and Injury

- 12.81 The construction phase would result in the total or partial loss of eight buildings which are confirmed roosts on the Site and further buildings with bat potential. The unmitigated impacts on bats at the Site are shown in the **Table 12.14**.
- 12.82 In the absence of mitigation, the demolition and construction phase could potentially kill or injure at least 30 common pipistrelle bats using a maternity roost (seen emerging in 2006), and five other roosts where roost type is yet to be determined. This is a certain/near certain **adverse impact of moderate significance**.
- 12.83 Without mitigation, the Development would contravene European legislation and policy with respect to bats in particular the Conservation of Habitats and Species 2010. Three species of bat present at the Site (soprano pipistrelle, brown long-eared and noctule) are UKBAP Priority species and Species of Principal Importance under the NERC Act 2006 and the local planning should protect these species from the adverse effects of development in accordance with PPS9.

Table 12.14: Impact on Bats From Direct Mortality and Injury

Beneficial/Adverse	Adverse
Magnitude	The killing and injury of at least 30 common pipistrelle bats using a maternity roost (2006) and bats using eight confirmed bat roosts for common and soprano pipistrelles and brown long-eared bats.
Extent	Within the Site boundary in Buildings 125, 133, 146, 446, 455, 457 474, 485 and 598.
Duration	Permanent
Reversibility	Irreversible although bat populations could recover over time
Frequency	Once
Timing	During the demolition and construction phase 2011-2016

12.84 Development without mitigation would also contravene the non-statutory Cherwell Local Plan 2011 Policy EN25 which should not allow development which would adversely affect any species protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and aims to protect European protected species. The saved Policy C4 of the Cherwell Local Plan 1996 aims to protect habitat and species on new developments.

12.85 Mitigation measures are recommended later in this Chapter to prevent killing and injury of bats during the demolition and construction phase of the Development which, if implemented, should allow the Development to comply with relevant legislation and planning policy with regard to bats. Mitigation for bats is covered by a strict licensing procedure.

Habitat Loss

12.86 The construction phase would result in the total or partial loss of six buildings which are confirmed roosts on the Site and buildings with bat potential and up to five sections of hedgerow and up to approximately 47,000m² coarse grassland, up to 327,000m² amenity grassland and up to approximately 250m² dense scrub which could potentially be used for foraging. The impact on bats at the Site from habitat loss is shown in **Table 12.15**.

12.87 In the absence of mitigation, the demolition and construction phase would result in the loss of habitat for bats of up to six species of bat. The presence of bats over at least eight years including UK BAP Priority Species, the maternity roost and the number of roosts which would be lost along with the amount of foraging habitat lost make this certain/near certain to have an **adverse impact of moderate significance**.

12.88 Without mitigation, the Development would contravene legislation and policy with respect to bats as detailed above. Mitigation measures are recommended later in this Chapter to offset the loss of bat habitat during the demolition and construction phase of the Development at the Site which, if implemented, should allow the Development to comply with relevant legislation and planning policy with regard to bats. Mitigation for bats is covered by a strict licensing procedure.

Table 12.15: Impact of the Loss of Bat Habitat

Beneficial/Adverse	Adverse Impact of Moderate Significance
Magnitude	The demolition and construction phase would result in the loss or partial loss of 74 buildings which support bats or have the potential to support bats. Eight buildings are confirmed bat roosts for common and soprano pipistrelles and brown long-eared including a maternity roost. Terrestrial habitat used for foraging and commuting of up to 47000m ² coarse grassland, up to 327000 m ² amenity grassland and up to 250m ² dense scrub and sections of up to five hedges may be lost.
Extent	Within the Site boundary, Buildings 125, 133, 146, 446, 455, 457, 474, 485 and 598 and up to 74 buildings with the potential to support roosting bats
Duration	Permanent
Reversibility	Irreversible
Frequency	Once
Timing	During the demolition and construction phase 2011-2016

Birds

12.89 Birds using the Site could be impacted in the following ways:

- destruction of nests and eggs; and
- loss of breeding and terrestrial habitat.

Destruction of Bird Nests and Eggs

12.90 The demolition and construction phase of the Development could result in the destruction of birds' nests and eggs during Site clearance. The impact of the demolition and construction phase of the Development on birds is characterised in **Table 12.16**.

Table 12.16: Impact on Birds From the Destruction of Nests and Eggs

Beneficial/Adverse	Adverse Impact of Minor Significance
Magnitude	Site clearance could result in the destruction of birds' nests and eggs during the clearance of trees and scrub and the loss of nesting habitat in the form of trees to be removed, up to five hedgerows and up to 250m ² dense scrub. Birds which used the Site for nesting in 2006 include starling, house martin, song thrush, house sparrow, wheatear and yellow wagtail.
Extent	Within the Site boundary in trees, hedgerows and areas of dense scrub
Duration	Permanent but bird populations could recover
Reversibility	Reversible with mitigation
Frequency	Once
Timing	During the demolition and construction phase 2011-2016

- 12.91 The demolition and construction phase would involve the removal of trees and scrub on the Site which may contain nest in use possibly containing eggs. The population of birds using the Site is of zone of influence value. This factors could result in a decrease in bird populations at a local level for the six bird species identified as using the Site in 2010 (**Table 12.7**) and the six nesting at the Site in 2006 (**Table 12.8**) and those bird species recorded within 1km which potentially use the Site.
- 12.92 In the absence of mitigation, the demolition and construction phase would have a probable permanent **adverse impact of minor significance** on populations of bird species, including UK BAP species, at the Site through the destruction of nests and eggs.
- 12.93 Destruction of birds' nests and eggs is an offence under the Wildlife and Countryside Act 1981 (as amended). In addition, the ODPM circular 05/2006 states that 'the presence of protected species is a material consideration in the planning process', which is addressed by Policy EN35 of the non-statutory Local Plan 2011.
- 12.94 Mitigation measures are recommended later in this Chapter and, if implemented, should ensure that the Development proposals are compliant with the relevant national and local legislation and planning policies including the NERC Act.

Loss of Bird Breeding and Terrestrial Habitat

- 12.95 The demolition and construction phase of the Development would result in the loss of areas of suitable breeding and terrestrial habitat for birds using the Site. The impact of the demolition and construction phase of the Development on birds from habitat loss is characterised in **Table 12.17**.

Table 12.17: Impacts on Birds From the Loss of Breeding and Terrestrial Habitat

Beneficial/Adverse	Adverse
Magnitude	Site clearance would result in the loss of up to five hedgerows, trees and 250m ² shrubs used for nesting and foraging and hedgerows, amenity grassland of up to 47000m ² used for foraging and up to 150 buildings. Birds recorded using the Site include blackbird, chaffinch, corn bunting, great tit, grey wagtail, green woodpecker, house martin, house sparrow, jay, linnet, pied wagtail, red legged partridge, robin, song thrush, starling, yellow hammer, yellow wagtail, wheatear, whitethroat and wood warbler.
Extent	Within the Site boundary in suitable habitat described above
Duration	Permanent
Reversibility	Reversible with habitat creation
Frequency	Once
Timing	During the demolition and construction phase 2011-2016

- 12.96 The demolition and construction phase would involve the loss of up to 150 buildings at the Site, removal of trees and scrub on the Site used by populations of birds using the Site for nesting and foraging (see **Tables 12.7 to 12.9**). This could result in a decrease in bird populations at a zone of influence level for bird species known to use the Site and those recorded within 1km which potentially use the Site for breeding and foraging.

- 12.97 In the absence of mitigation, the demolition and construction phase would have a certain/near certain **adverse impact of minor significance** on birds at the Site.
- 12.98 Birds, their nests whilst in use and eggs are protected under the Wildlife and Countryside Act 1981 (as amended) but this does not extend to loss of habitat. However, PPS9 states that protected species are a material consideration in the planning process and Policy EN35 of the non-statutory Local Plan 2011 aims to maintain trees, hedges and other features with ecological value. Saved policy C4 of the Cherwell Local Plan 1996 also aims to protect habitat and species on new developments. UK BAP species are also present at the Site.
- 12.99 Mitigation measures are recommended later in this Chapter and, if implemented, should ensure that the Development proposals are compliant with the relevant national and local legislation and planning policies.

Completed Development

- 12.100 There are not expected to be any operational impacts following the completion of the Development.

Mitigation and Residual Impacts

Demolition and Construction

Loss of Hedgerows

- 12.101 Habitats at the Site such as hedgerows are predominantly proposed for retention in principle although some boundary hedges are to be removed during the demolition and construction phase. The following mitigation for hedgerows is recommended:
- hedgerows should be protected under BS:5837 (2005) '*Trees in Relation to Construction*';
 - if hedgerows are to be removed they should be replaced with new hedgerows of the same or greater length;
 - native species particular to the locality should be used, for example some of the hawthorn planted could be midland hawthorn which is present in the locality;
 - nut and berry-bearing species should be selected;
 - flowering native species to attract butterflies, moths and breeding birds should be used;
 - where possible, hedgerows should connect with other ecological features to provide extra benefit to biodiversity i.e. other hedgerow, woodland, ponds or scrub which may be used for commuting and foraging by bats and birds;
 - where access gaps are created in hedgerows enhancement should take place for 20m either side of the gap; and
 - infill existing hedgerows with native species.
- 12.102 If these mitigation measures are implemented, there should be a **certain/near certain beneficial impact of minor significance** on hedgerows present on the Site. As these would be enhanced or replaced from predominately intensively-managed hedgerows of low species diversity to species-rich native hedgerows of greater length and an increase in foraging for invertebrates, bats and birds providing a more connected network of habitats with additional benefit to the faunal species present at the Site.

Loss of Trees

- 12.103 Habitats and trees at the Site such as scattered broadleaved trees and scrub are predominantly proposed for retention in principle although up to 200 trees and small groups of trees are understood to be proposed for removal throughout the Site. The majority of the conifers are to be gradually replaced. The following mitigation for scattered trees is recommended:
- retained trees should be protected under BS:5837 (2005) '*Trees in Relation to Construction*';
 - if trees or groups of trees are to be removed they should be replaced with native trees of a similar or greater number;
 - native species particular to the locality should be used, rather than introduced named varieties;
 - nut and berry-bearing species should be selected preferentially;
 - flowering native species to attract butterflies, moths and breeding birds should be used;
 - where possible, trees should connect with other ecological features to provide extra benefit to biodiversity i.e. hedgerow, woodland, ponds or scrub;
 - the avenue nature of many of the trees on Site should be retained and enhanced to aid bats and birds in commuting and foraging; and
 - trees to be removed with bat potential should be surveyed for bats; an European Protected Species Licence (EPSL) may be required should a roost be found.
- 12.104 With the implementation of these mitigation measures there would be **no significant residual impacts** on the semi-natural habitats present at the Site.

Great Crested Newts

- 12.105 In order to prevent killing and injury to great crested newts, a programme of exclusion and translocation should be devised. This would be subject to the granting of an EPSL from Natural England requiring a detailed mitigation method statement which should be prepared.
- 12.106 Suggested mitigation which may be included within the licence mitigation method statement would include:
- sourcing of a receptor site, on or off the Site, with no great crested newts present in which to translocate the population of great crested newts;
 - preparing the receptor site to include aquatic habitat and terrestrial habitat comprising a mixture of scrub and species-rich grassland to be kept long with the addition of log piles and hibernacula;
 - draining the waterbodies on the Site whilst great crested newts are in their terrestrial habitat;
 - ring fencing the waterbodies;
 - great crested newts should be excluded from areas of terrestrial habitat by the installation of amphibian proof fencing pitfall traps around the areas of habitat within the Site which could be used by great crested newts;
 - a period of trapping great crested newts, followed by translocation to the receptor area, in early spring; and
 - managing and monitoring of the receptor site for at least five years.
- 12.107 To comply with Natural England's mitigation guidelines 2001, receptor site ponds should be:

- between 200 m² and 300 m² in area;
- approximately 1m deep with shallow, sloping margins;
- the ponds should be planted with native aquatic plants;
- fish should be excluded and the ponds maintained free of fish; and
- the new ponds would need to be established in advance of the return of great crested newts to breeding habitat from February onwards in order that they are not left without breeding habitat.

- 12.108 Should the Site clearance works not commence before Spring 2012 then it may be necessary to re-survey some or all of the waterbodies at the Site to establish the current use of the Site by great crested newts and review the population class assessment. This would be used to inform a EPSL application from Natural England which must be granted prior to the start of any works at the Site.
- 12.109 If these mitigation measures are implemented there would be **no significant residual impacts** on the conservation status of great crested newts at the Site.

Bats

- 12.110 Mitigation for the populations of bats at the Site should include the provision of bat roosts to replace the confirmed roosts. The mitigation would be subject to a EPSL from Natural England.
- 12.111 The pipistrelle maternity roost should be replaced with a roost of similar size and environmental conditions to the existing roost and should be installed prior to demolition works commence and prior to the start of the bat breeding season. The replacement roost could be either a new separate, standalone roost or the dedicated roof space of one of the proposed or existing buildings which should be specifically designed for bats.
- 12.112 Summer roosts, used by one or more bats on a temporary basis throughout the summer can be provided in existing or proposed buildings in the form of either a series of specially-designed roof tiles to accommodate bats or free-standing roosts.
- 12.113 If any mature trees or hedgerows running throughout the Site are to be removed these should be replaced with native species. Native planting around the ponds and connectivity with hedges, shrubs and trees can increase the nature conservation value of these features.
- 12.114 Surveys for bats would be required in order to inform an EPSL application to Natural England. The current survey results should also be used in this licence application however, further detail in the form of the type of roost at each of the buildings to be demolished which are confirmed roosts. Any trees to be removed which have the potential to support roosting bats should first be surveyed.
- 12.115 In addition, internal inspections and dusk/dawn surveys of all buildings to be demolished found to have low, medium or high potential to support bats would be required. These further surveys could be undertaken over winter 2010/11 (to identify hibernation roosts) or from May 2011. Should works not commence before Spring 2012, further updated surveys may be required by Natural England.
- 12.116 If these recommended mitigation measures are implemented, there would be **no significant residual impact** on bats at the Site.

Birds

- 12.117 To mitigate for the adverse impacts on birds mitigation measures could include:
- removing trees and shrubs outside of the breeding bird season, i.e. within August to February, inclusive;
 - planting of native trees to replace those to be lost;
 - planting of native species-rich hedgerows to replace those to be lost;
 - creation of species-rich native wildflower areas to provide foraging habitat
 - providing native-planted ponds throughout the Site;
 - providing bird nest boxes on mature trees to be retained in order to provide further nesting opportunities; and
 - providing bird boxes suitable for house sparrow and starling.
- 12.118 Implementation of the mitigation recommended in the Mitigation section for birds should result in additional foraging habitat with the potential for the Site to support additional species and consequently there would be **no significant residual impacts** for birds at the Site.

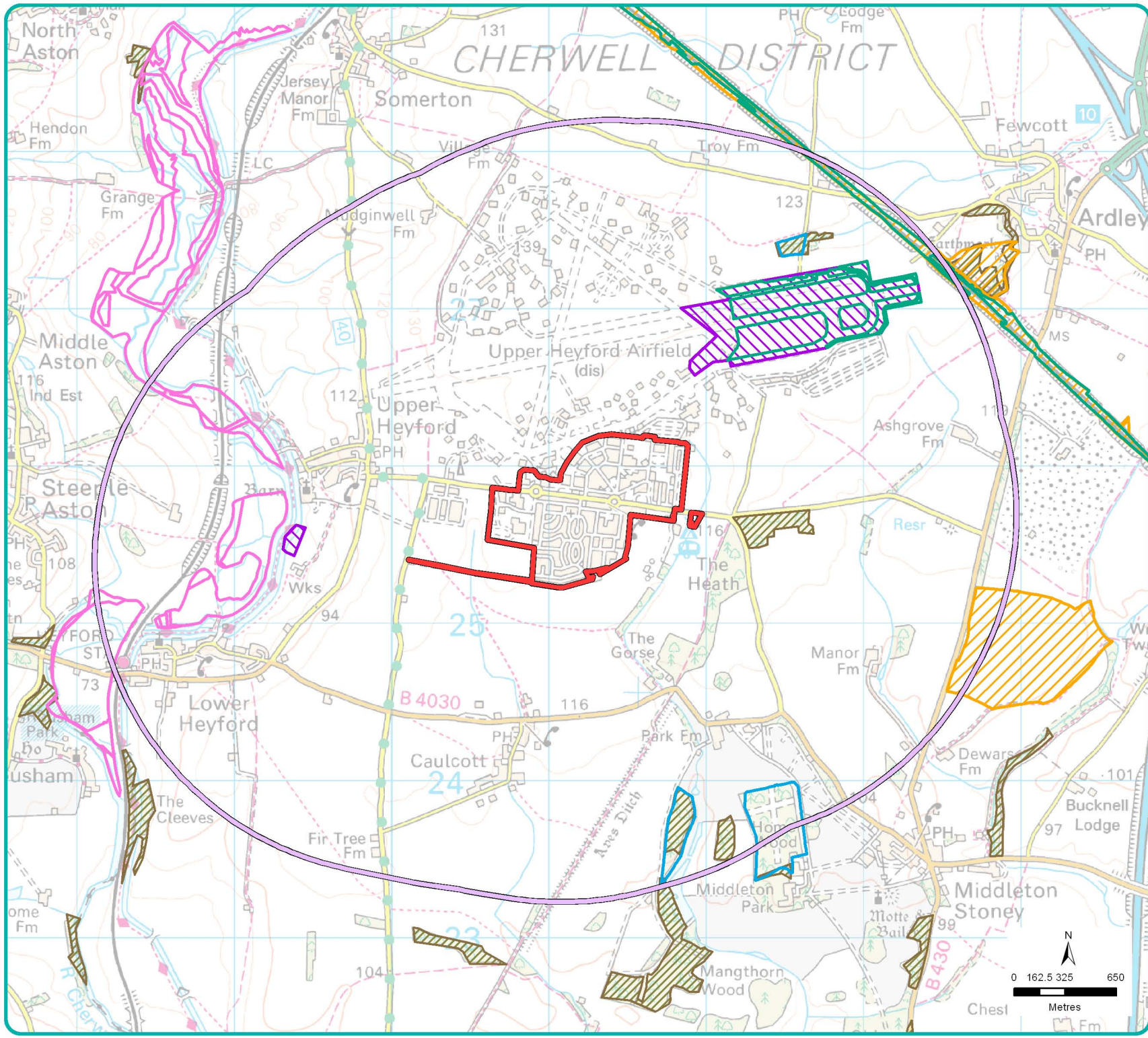
Completed Development

- 12.119 No impacts would be likely to occur once the Development is completed so no mitigation is required. However, the Site could be enhancement for biodiversity through the following measures:
- inclusion of green or brown roofs on suitable buildings at the Site;
 - clearance of vegetation from stream RW1 (identified on **Figure 12.2**) to reduce shading and improve water quality;
 - bankside planting of native species to stream RW1 to improve species and provide foraging and cover for aquatic species and invertebrates;
 - native grasses and wildflowers used in landscaped areas, where appropriate;
 - design and implementation of a management plan to ensure the habitats created are managed in the long-term in order that they remain of biodiversity value.
- 12.120 Cotoneaster (*Cotoneaster horizontalis*) is present in the form of a small clipped hedge north of Camp Road (see target note TN1 on Figure 12.1). This is listed as a non-native species from April 2010 under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). As it would be an offence under the Act to cause this species to grow in the wild outside of its current extent, steps should be taken throughout the Development to ensure that this does not occur. Burning on Site is the most effective method of eradication.

Conclusion

- 12.121 The majority of habitats on the Site are of low nature conservation value, although trees and hedgerows provide important habitat for invertebrates, bats and birds. The planting of new native hedgerows and trees to compensate for those lost through the Development should improve connection between habitats to ensure ecological benefits are maximised. Further habitat enhancement measures are proposed to provide even greater biodiversity value at the Site.

- 12.122 Two European protected species: great crested newts and bats are currently present at the Site and both species could be impacted during the construction phase through the loss of important habitat. Great crested newts would require new habitat, in the form of ponds, prior to their relocation under licence from Natural England. New ponds should be enhanced with suitable vegetation and log and stone piles for hibernation to protect and enhance great crested newt populations at the Site. Three species of bat were found to be roosting in a number of buildings proposed for demolition. The demolition of these buildings would need to take place under licence from Natural England therefore further survey is required prior to demolition to accurately assess the type of bat roosts. The provision of alternative roosts, possibly incorporated into existing or new buildings would minimise the impacts on bats.
- 12.123 Breeding birds at the Site are common and widespread, however, works that may affect nesting birds (e.g. vegetation clearance and building demolition) should take place outside of the breeding season to ensure that impacts are minimised. Replacement planting of native species and provision of bird boxes should ensure that breeding bird populations are protected, and even enhanced, across the Site.



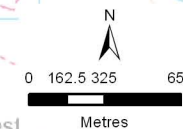
Legend

-  Site of Special Scientific Interest (SSSI)
-  Local Wildlife Site
-  Ancient Woodland
- UK BAP Habitats within Zone of Influence*
-  Coastal & Floodplain Grazing Marsh
-  Lowland Calcareous Grassland
-  Lowland Mixed Deciduous Woodland
-  Zone of Influence
-  Application Site Boundary

Data originates from different sources and scales of mapping and should therefore be considered indicative of position and extent.
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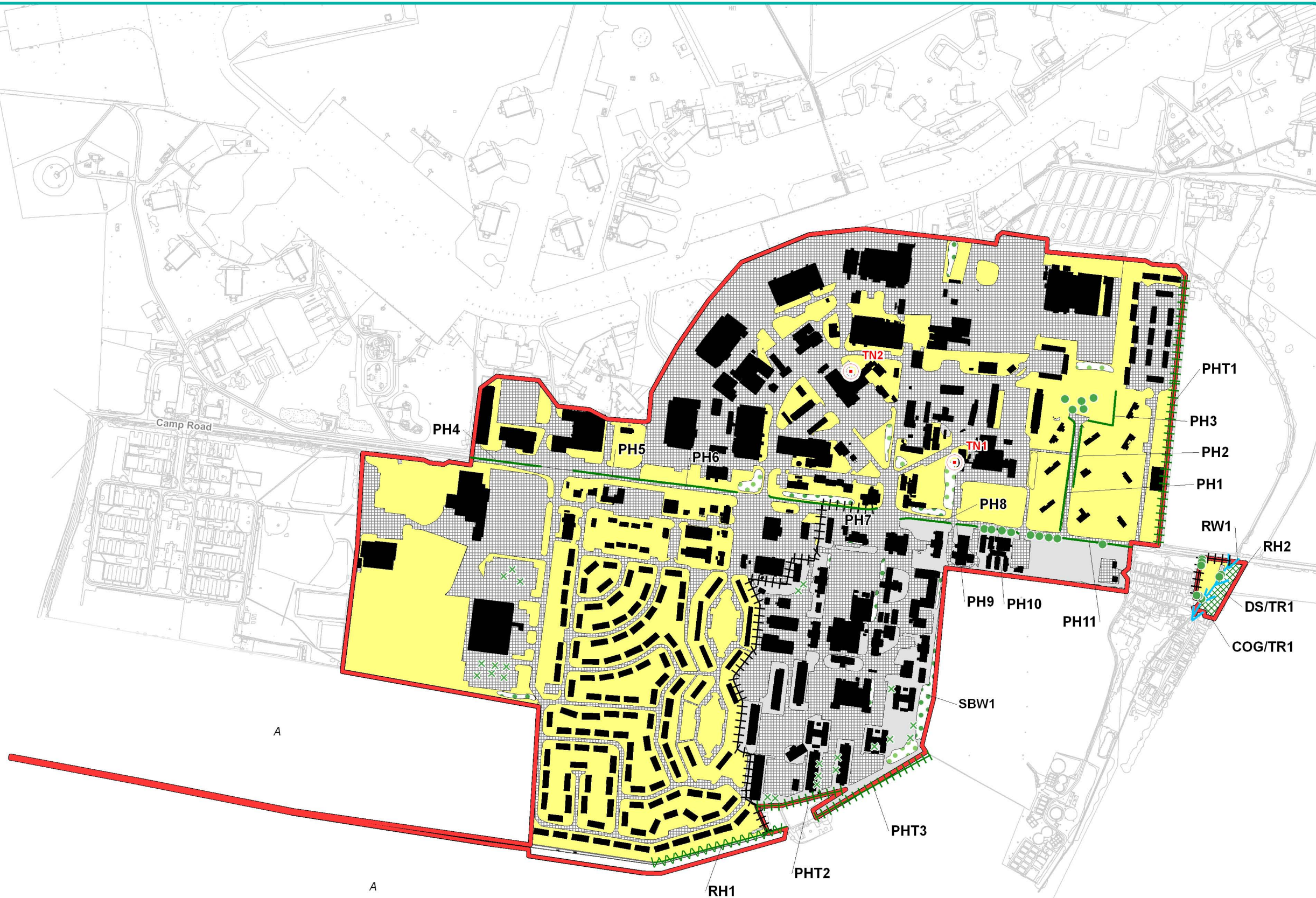
Figure: 12.1
Desk Study Results

Surveyed For: Wateman Energy, Environmental and Design
 Drawing Ref: AWAT124/6339/2
 Drawing Size: A4
 Drawn By: Thomson Ecology (KS)
 Checked By: Thomson Ecology (TD)
 Date: 23/09/2010



Legend

- Target Note
- Habitats Within Application Site Boundary*
- × Scattered Scrub (SS)
- Scattered Broadleaved Trees (SBW)
- Running Water (RW)
- ▬▬▬ Species Rich Intact Hedge (RH)
- ▬▬▬ Species Poor Intact Hedge (PH)
- ▬▬▬ Species Poor Hedge With Trees (PHT)
- ▬▬▬ Fence (F)
- ▨ Dense / Continuous Scrub (DS)
- Scattered Broadleaved Trees (SBW)
- Scattered Coniferous Trees (SCW)
- ▨ Coarse Grassland (*rank*) (COG)
- ▨ Arable (A) (A)
- ▨ Amenity Grassland (A) (AM)
- ▨ Buildings (B)
- ▨ Hard Standing (HS)
- ▨ Bare Ground (BG)
- ▭ Application Site Boundary

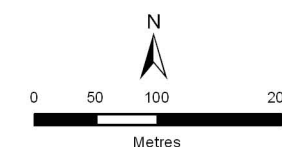


This map has been drawn at a sufficient accuracy to fulfill the requirements of a Phase 1 baseline habitat survey. This map is not intended to represent a scaled landscape survey so should not be used to pin-point accurate engineering work or as a basis for detailed site planning.

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Figure: 12.2
Extended Phase 1 Habitat Survey

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Drawing Ref: AWAT124/6340/2
Drawing Size: A3
Drawn By: Thomson Ecology (KS)
Checked By: Thomson Ecology (TD)
Date: 23/09/2010



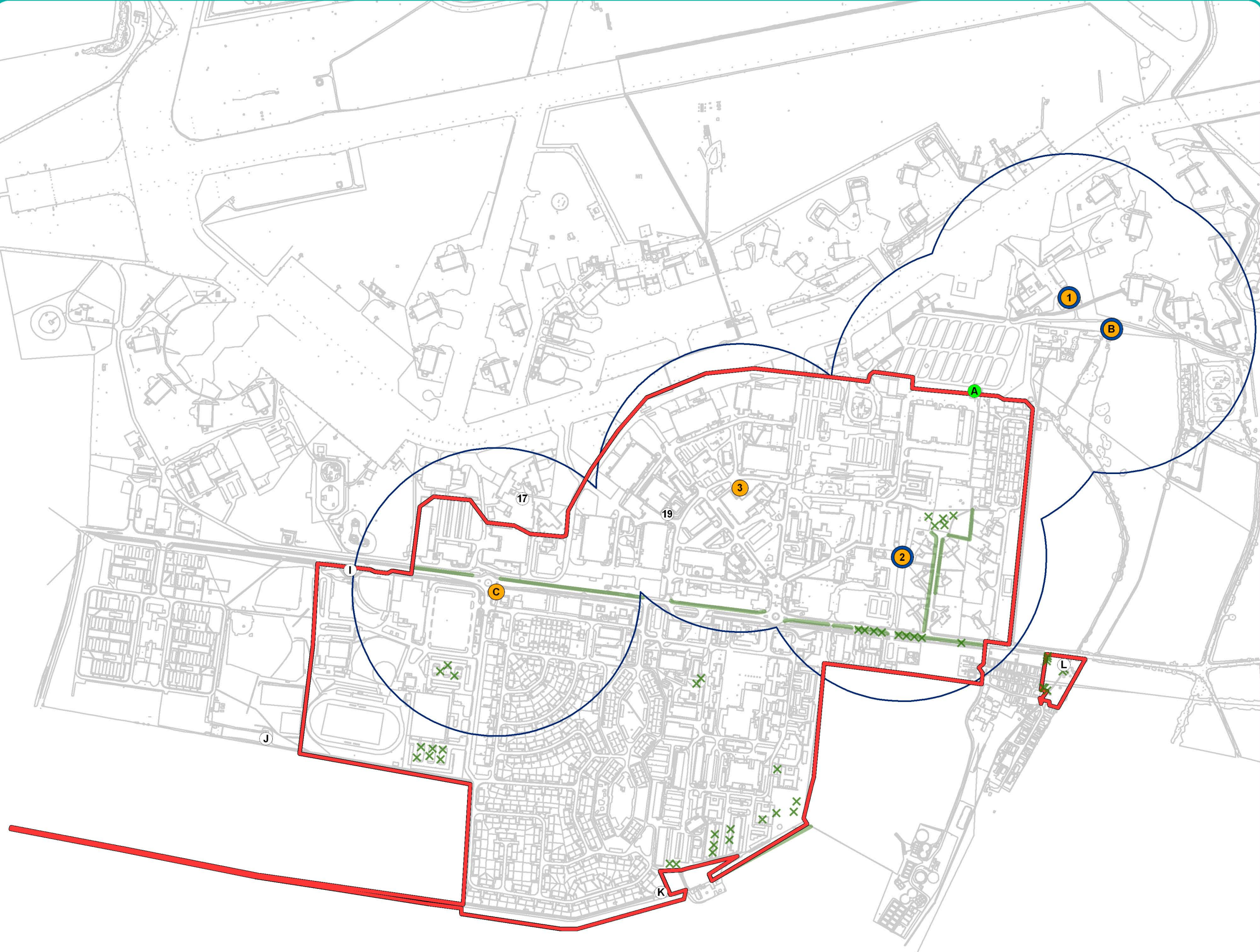
Legend

Waterbodies

- GCNs Present 2010
- GCNs Present 2007
- GCNs Present 2005
- No Record of GCNs
- 250m Buffer of Water Body Containing GCN

Terrestrial Habitats

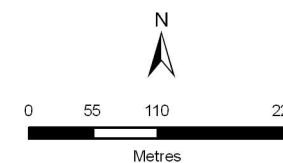
- Scattered Scrub
- Hedge
- Application Site Boundary



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Figure: 12.3
Protected Species -
Great Crested Newts

Surveyed For: Waterman Energy, Environmental and Design
Drawing Ref: AWAT124/6341/2
Drawing Size: A3
Drawn By: Thomson Ecology (KS)
Checked By: Thomson Ecology (TD)
Date: 23/09/2010



Legend

Surveyor Location
(Bat Activity Surveys)

Transect Route
(Transect Surveys)

Potential Bat Foraging /
Commuting Area

Building Demolition (31/08/2010)

Building for Total Demolition

Building for Partial Demolition

Bat Roost Potential

Confirmed

High

Medium

Low

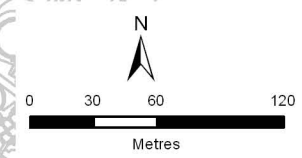
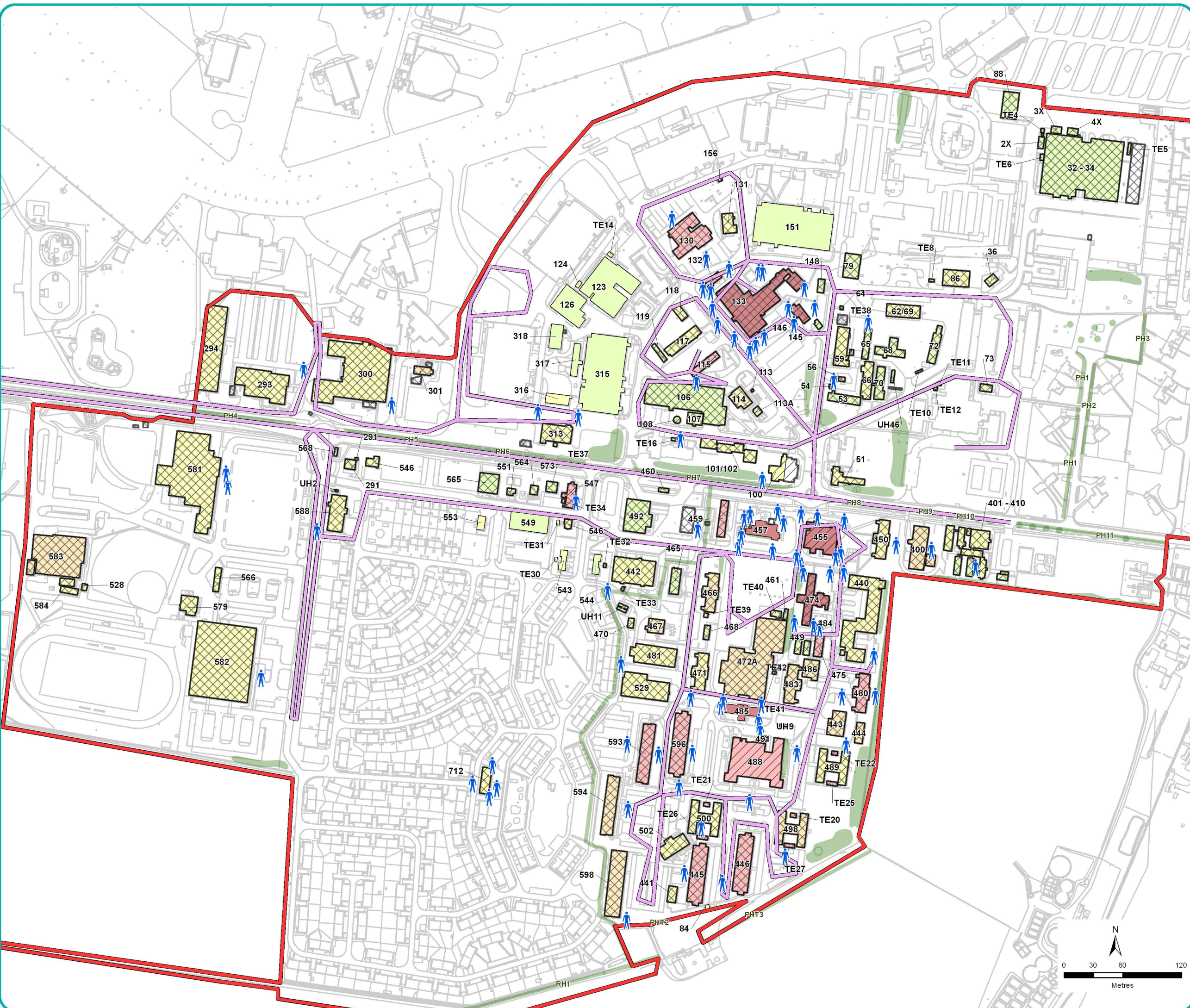
Negligible

Application Site Boundary

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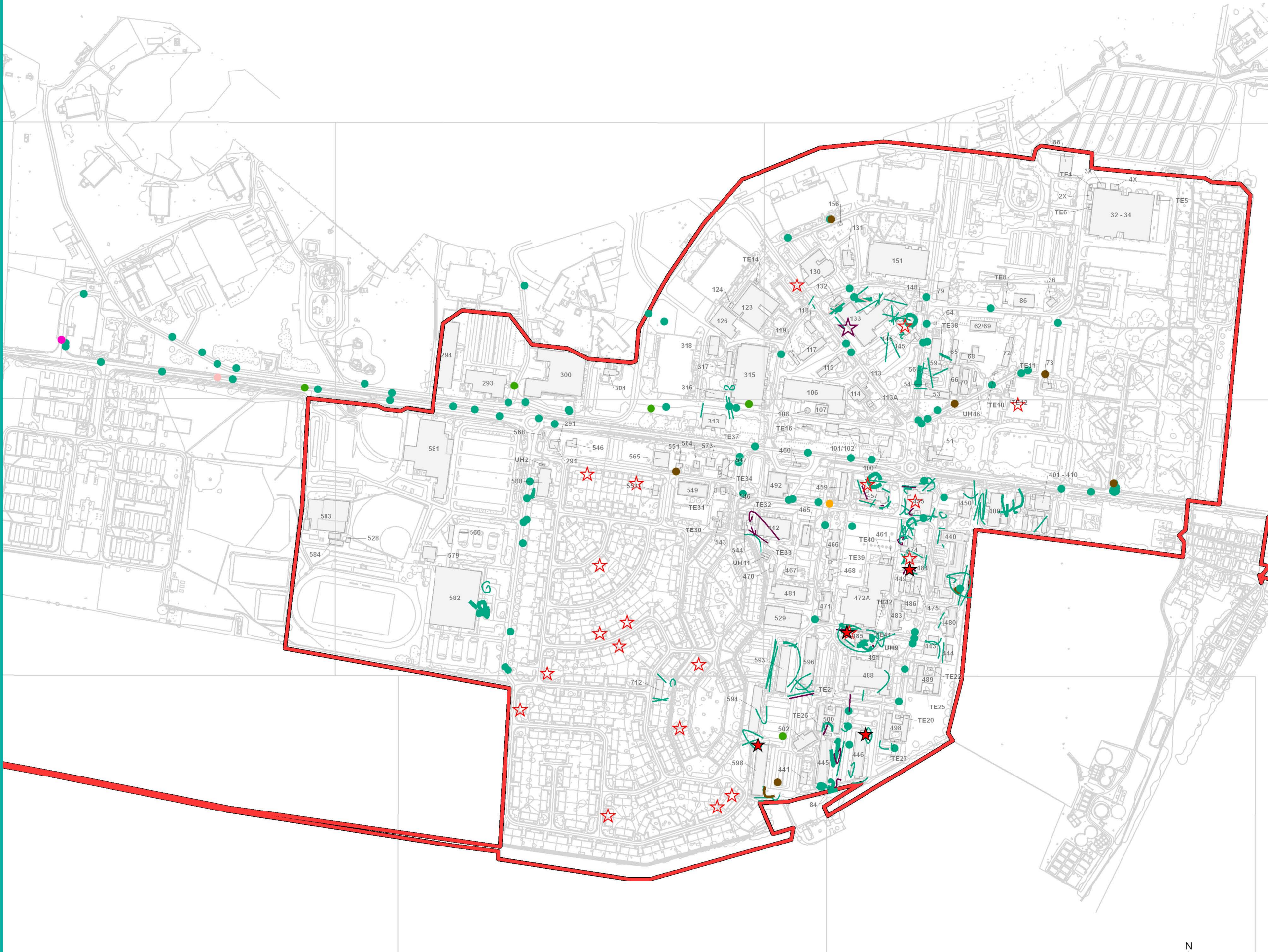
Figure: 12.4a
Protected Species -
Bat Potential

Surveyed For: Waterman Energy, Environmental and Design
Drawing Ref: AWAT124/6342/2
Drawing Size: A3
Drawn By: Thomson Ecology (KS)
Checked By: Thomson Ecology (TD)
Date: 23/09/2010



Legend

- ★ Roost (2010)
- Bat Roosts*
- ☆ Maternity Roost (2007)
- ★ Roost (2007)
- Summarised Emergence Results*
- Brown long-eared Bat *Plecotus auritus*
1 - 30 passes
- Myotis Species
1 - 30 passes
- Pipistrelle Species
51+ passes
- Pipistrelle Species
31 - 50 passes
- Pipistrelle Species
1 - 30 passes
- Serotine *Eptesicus serotinus*
31 - 50 passes
- Unidentified
1 - 30 passes
- Transect Results*
- Leisler's Bat *Nyctalus leisleri*
1 - 5 passes
- Myotis Species
1 - 5 passes
- Noctule *Nyctalus noctula*
1 - 5 passes
- Pipistrelle Species
6 - 30 passes
- Pipistrelle Species
6 - 30 passes
- Serotine *Eptesicus serotinus*
1 - 5 passes
- Unidentified Bat
1 - 5 passes
- Application Site Boundary



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Figure: 12.4b
Protected Species -
Results of Bat Surveys

Surveyed For: Waterman Energy, Environmental and Design
Drawing Ref: AWAT124/6343/2
Drawing Size: A3
Drawn By: Thomson Ecology (KS)
Checked By: Thomson Ecology (TD)
Date: 23/09/2010

