



**TERRIERS FARM, HIGH WYCOMBE
PHASE I HABITAT AND SCOPING
SURVEY**

14th October 2013

Our Ref: JPP3200

RPS

Willow Mere House
Compass Point Business Park
Stocks Bridge Way
St Ives
Cambridgeshire PE27 5JL

Tel: +44(0)1480 466335
Fax: +44(0)1480 466911
Email: rpscm@rpsgroup.com

QUALITY MANAGEMENT

Prepared by:	Kevin Doidge
Surveyors:	Kevin Doidge
Authorised by:	Max Wade
Date:	17.09.2015
Project Number/Document Reference:	JPP3200-R-001d
Client	Persimmon Homes/Redrow Homes

COPYRIGHT © RPS

The material presented in this report is confidential. This report has been prepared for the exclusive use of Persimmon Homes and shall not be distributed or made available to any other company or person without the knowledge and written consent of The Persimmon Homes or RPS.

To achieve the study objectives stated in this report, we were required to base our conclusions on the best information available during the period of the investigation and within the limits prescribed by our client in the agreement.

No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations completely defined the degree or extent of e.g. species abundances or habitat management efficacy described in the report.

CONTENTS

EXECUTIVE SUMMARY	1
1 INTRODUCTION	2
Background to the study	2
Aims	2
Study area	2
2 METHODS	3
Desk study	3
Phase 1 Habitat survey	3
Ecological scoping survey	3
3 RESULTS	4
Desk study	4
Phase 1 Habitat survey	5
Woodland and scrub.....	5
Grassland.....	6
Tall ruderal vegetation.....	7
Ponds.....	7
Ecological scoping survey	8
Plant species.....	8
Invertebrates.....	9
Amphibians.....	9
Reptiles.....	9
Birds.....	9
Mammals.....	9
4 EVALUATION	11
Designated sites	11
Habitats of potential conservation importance	11
Species	12
Invertebrates.....	12
Birds.....	12
Mammals.....	12
5 IMPLICATIONS TO THE DEVELOPMENT	14
Designated sites	14
Habitats of potential conservation importance	14
Species	14
Invertebrates.....	14
Birds.....	14

Mammals.....	15
6 CONCLUSIONS.....	17
7 REFERENCES.....	18
8 FIGURES.....	19
APPENDIX 1 – NON-STATUTORY DESIGNATED SITES.....	22
APPENDIX 2 - BIRD DATA SEARCH RESULTS	23

FIGURES

Figure 3.1 Designated sites within 2 km	19
Figure 3.2 UKBAP Habitats within 2 km.....	20
Figure 3.3 Phase 1 Habitat map	21

EXECUTIVE SUMMARY

- RPS Cambridge was commissioned by Persimmon Homes/Redrow Homes to carry out an ecological appraisal of land at Terriers Farm, High Wycombe, Buckinghamshire. This was undertaken through a Phase 1 Habitat survey and a protected species scoping survey, the aims of which were to identify any potential ecological constraints to the development, and make any appropriate recommendations for further survey work and mitigation.
- The site, located between the town of High Wycombe to the west and the village of Hazlemere to the east, comprises mainly grassland (unimproved neutral grassland and semi-improved neutral grassland), several areas of plantation woodland, semi-natural woodland, dense scrub, hedgerows and tall ruderal vegetation.
- It is considered that the three areas of woodland have ecological value and should be retained within the development and that the unimproved neutral grassland has conservation value. This applies particularly to the grassland in fields 10 and 11 which, if possible, should be retained and incorporated within the site design.
- All the hedgerows on site are of conservation value, it is recommended that, where possible, the hedgerows along the site boundary should be retained.
- Minimising impacts on hedgerows, woodland and species-rich grassland would avoid significant impacts on invertebrates. Creating new species-rich grassland and the addition of log piles within the woodland would also enhance the amount of suitable habitat on site.
- The woodland, hedgerows and scrub on site were identified as potentially supporting breeding bird species of conservation interest. Any vegetation clearance required for construction should ideally be carried out during September to February inclusive to avoid potential impacts on breeding birds. Further, subject to discussions with the Local Authority Ecologist, breeding bird surveys (comprising five visits spread between March and June) may also be required.
- A large number of trees on site were identified as having bat roost potential, but the majority of these trees occurred along the site boundary and within woodland, both of which should be retained within the development. A number of the trees occurred outside these areas and could potentially be lost during development of the site. A detailed survey should therefore be undertaken of any that are to be lost.
- The hedgerows and woodland are likely to be used by commuting and foraging bats, but the majority of these would be retained and would maintain these flight routes. It is likely that, subject to discussion with the Local Authority Ecologist, bat activity surveys will be required on site. These would comprise monthly transects of the site between May and October.

1 INTRODUCTION

Background to the study

- 1.1 RPS Cambridge was commissioned by Persimmon Homes and Redrow Homes to carry out an ecological appraisal of land at Terriers Farm, High Wycombe, Buckinghamshire to inform the development of the land for residential purposes.

Aims

- 1.2 The aims of the survey were to identify any potential ecological constraints to the development, and make any appropriate recommendations for further survey work and mitigation.

Study area

- 1.3 The site is located between the town of High Wycombe to the west and the village of Hazlemere to the east. A footpath runs along the majority of the northern edge of the site with a playing field to the east. The rest of the site boundary is predominantly residential properties and Kingshill Road to the south and west.
- 1.4 The site consists of 11 fields. At the time of the site visit the four fields to the north-east had been recently mown and were being used for informal recreation, primarily walking (much of which is dog walking), whilst the rest appeared to be used as horse pasture with two fields occupied by horses. Three sections of woodland occurred on site whilst hedgerows formed the majority of the field boundaries.
- 1.5 It is understood that the land is subject proactive agricultural management such that the circumstances and condition of the land could change in the future.
- 1.6 The central grid reference of the site is SU 88046 95178.

2 METHODS

Desk study

- 2.1 Records of protected and notable species and information on designated sites within 2 km of the proposal site were requested from the local biological records centre, the Buckinghamshire & Milton Keynes Environmental Records Centre.
- 2.2 Records were screened for relevance and age with only those from the last 10 years and of species that could occur on site considered further.
- 2.3 Aerial photos of the site (Google 2013) were examined to determine habitats surrounding the site and hence species likely to be present in order to make appropriate recommendations in the wider landscape context.

Phase 1 Habitat survey

- 2.4 A Phase 1 Habitat survey was undertaken by a suitably qualified ecologist on 27th August 2013. The survey followed the standard methodology (JNCC, 2010). In summary, this comprised walking over the survey area and recording the habitat types and boundary features present.
- 2.5 Dominant plant species observed within each habitat type were recorded on a DAFOR scale. This classifies species as Dominant, Abundant, Frequent, Occasional or Rare.

Ecological scoping survey

- 2.6 A protected species scoping survey was carried out in conjunction with the Phase 1 Habitat survey. The site was assessed for its suitability to support protected species, in particular Badgers *Meles meles*, bats, birds, reptiles, Great Crested Newts *Triturus cristatus* (GCN), and other species of conservation importance that could pose a planning constraint.
- 2.7 The scoping survey does not assess the presence or absence of species, but is used to assess the potential for habitat to support them. Where clear and recent evidence of a species is observed, this is reported

3 RESULTS

Desk study

- 3.1 A single statutory designated site, Millfield Wood Site of Special Scientific Interest (SSSI), was located approximately 750 m north west of the site (see Figure 3.1). This site is designated as a rare example of semi-natural Chiltern beechwood on chalk containing a substantial amount of relic Wych elm coppice. With a diverse ground flora, it also supports a range of invertebrate species.
- 3.2 Four non-statutory Local Wildlife Sites (LWS) along with 11 Biological Notification Sites were located within 2 km of the site. Details are provided in Appendix 1 and Figure 3.1.
- 3.3 Details of the surrounding Biodiversity Action Plan (BAP) habitats were also provided and are summarised in Figure 3.2. None were recorded from the site but a significant amount of semi-natural ancient woodland (as reflected by the designated sites in the area) was noted in the surrounding 2 km.
- 3.4 An analysis of the records provided by the Buckinghamshire & Milton Keynes Environmental Records Centre identified some species that require further consideration.
- 3.5 Of the mammals known from the area, there are a number of records for Badger and for bats. Although none is actually from the Application Site, some are quite close and given the mobility of these species and the nature of the Application Site, consideration should be given as to potential impacts. The data search did not yield any records for Dormouse despite the potential in the habitat of the Application Site and surrounding areas. The national distribution for Dormouse shows it being quite restricted in Buckinghamshire (Arnold, 1993; Harris and Yalden, 2008) to the extent that a re-introduction project was undertaken for the species, the receptor area being in the north of the county.
- 3.6 Appendix 2 describes records provided of birds occurring in the area, some which could use the Application Site. The group of birds that is most likely to use the Application Site is the raptors. These species have large territories and could use the woodland area/treed boundaries.
- 3.7 There were no records of reptiles or amphibians from the Application Site though Slow-worm, Grass Snake, and Common Toad are present in the immediate environs.
- 3.8 There were a large number of records provided for insect species notably beetles, butterflies and moths. Most of these were pre-2002 and as such have not been included in the analysis. Striped Lychnis *Shargacucullia lychnitis*, a Nationally Scarce (Na) species of moth also a BAP priority species and one of Principal Importance has been recorded in recent years, all the records being just to the west of Valley Road and University College. The Striped Lychnis is found in roadside verges, embankments, field margins, rough downland, and also woodland rides and clearings, usually in un-shaded situations. The caterpillars feed on Dark Mullein *Verbascum nigrum* (also White Mullein *Verbascum lychnitis* and ornamental mulleins in gardens). Given the interest in the species locally and the lack of any records on the Application Site coupled with the no mullein species being found on the Application Site, it is assumed that this moth has not been found here.

- 3.9 Of a number of plant records, most being older than ten years, four species are worthy of note in the locality of the Application Site: Lesser Hairy-brome *Bromopsis benekenii*, Coralroot *Cardamine bulbifera*, Large-fruited Prickly-sedge *Carex muricata* subspecies *muricata* and Wild Pear *Pyrola pyraster*, all of which have been recorded in Millfield Wood SSSI and its locality but not from the Application Site. None of these species was recorded in the Phase 1 Habitat survey.

Phase 1 Habitat survey

- 3.10 The survey results are presented in the form of a map with the habitat types and boundary features marked (Figure 3.3). A comprehensive plant species list is attached in the appendices.

- 3.11 Descriptions of the habitat types (shown underlined) and dominant plant species identified onsite are detailed below.

Woodland and scrub

- 3.12 Three areas of woodland occurred on site. The first area consisted of broad-leaved semi-natural woodland and occurred along the edge of Kingshill Road to the south-west of the site. This woodland had a canopy consisting of Ash *Fraxinus excelsior* and Pedunculate Oak *Quercus robur* with Sycamore *Acer pseudoplatanus* and Horse-chestnut *Aesculus hippocastanum* situated along the edge of the road. The understorey contained Holly *Ilex aquifolium*, Whitebeam *Sorbus aria* and Common Hawthorn *Crataegus monogyna*. The ground flora contained frequent Spurge-laurel *Daphne laureola*, Wood False-brome *Brachypodium sylvaticum*, Ivy *Hedera helix*, Wood Dock *Rumex sanguineus*, Garlic Mustard *Alliaria petiolata* and Wall lettuce *Mycelis muralis*. In more open areas Common Nettle *Urtica dioica*, Cow-parsley *Anthriscus sylvestris*, Wood Avens *Geum urbanum* and Bramble *Rubus fruticosus* aggregate were frequent.

- 3.13 The second area on site was also broad-leaved semi-natural woodland and occurred in the centre of the site (between hedgerows 5 and 9, on Figure 3.1). The canopy consisted of Ash and Pedunculate Oak with occasional Scots Pine *Pinus silvestris* and Larch *Larix decidua*. A mature Wild Cherry *Prunus avium* was also present in the understorey along with Holly, Common Hawthorn, Elder *Sambucus nigra* and Hazel *Corylus avellana*. The ground flora comprised Ivy, Common Nettle, Lord's-and-ladies *Arum maculatum* and Dog's-mercury *Mercurialis perennis*.

- 3.14 The third area of woodland occurred along the south-eastern edge of the site and consisted of broad-leaved plantation woodland dominated by mature Beech *Fagus sylvatica* all of a similar age. Pedunculate Oak and Ash were occasional as canopy trees, whilst the understorey was dominated by Holly with occasional Cherry-laurel *Prunus laurocerasus* and Wild Cherry. The ground flora was sparse with the majority of the woodland dominated by leaf litter. More open areas consisted of Pendulous Sedge *Carex pendula*, Bracken *Pteridium aquilinum* and Common Nettle. Other species present included Enchanter's Nightshade *Circaea lutetiana*, Remote Sedge *Carex remota*, Wood Millet *Milium effusum* and Male-fern *Dryopteris felix-mas*. A large number of saplings were also present, predominantly Ash, Holly and Common Hawthorn.

3.15 Areas of dense scrub occurred around the site; the majority as encroachment from the hedgerows to the east of the site but also occurred in the south-west corner. Blackthorn *Prunus spinosa* was most abundant species with Bramble, Common Hawthorn and Elder all frequent.

3.16 Scattered scrub was also present in the fields to the south-west of the site.

Grassland

3.17 Several types of grassland occurred within the survey area and will be described by field number. Fields 1, 2 and 3 consisted of semi-improved neutral grassland and all had a similar composition with frequent Cock's-foot *Dactylis glomerata*, Red Fescue *Festuca rubra*, Ribwort Plantain *Plantago lanceolata*, and Yorkshire-fog *Holcus lanatus*. Occasional species included Hedge Bedstraw *Gallium mollugo*, False Oat-grass *Arrhenatherum elatius*, Red Clover *Trifolium pratense*, Meadow Buttercup *Ranunculus acris*, Common Bent *Agrostis capillaris*, Common Sorrel *Rumex acetosa*, Smooth Meadow-grass *Poa pratensis*, Timothy *Phleum pratense*, Field Bindweed *Convolvulus arvensis* and Common Bird's-foot-trefoil *Lotus corniculatus*. Perennial Rye-grass *Lolium perenne* was more frequent around the edge of these fields particularly where footpaths were present.

3.18 Target note 1 shows the location of an area of field 1 which had been left unmown. This area also had frequent Yellow-rattle *Rhinanthus minor*, which due to the rest of the field having been recently mown could be present elsewhere and not visible.

3.19 Field 4 consisted of unimproved neutral grassland with frequent Common Knapweed *Centaurea nigra*, Yorkshire-fog, Ribwort Plantain, Red Fescue and Common Bent. Occasional species included Red Clover, Common Bird's-foot-trefoil, Sweet Vernal-grass *Anthoxanthum odoratum*, Red Bartsia *Odontites vernus*, Timothy, Crested Dog's-tail *Cynosurus cristatus*, Hoary Ragwort *Senecio erucifolius* and Self-heal *Prunella vulgaris*. At the time of the survey it was being grazed by a horse.

3.20 Field 5 had been recently mown and consisted of semi-improved neutral grassland dominated by Yorkshire-fog with frequent Cock's-foot, Common Sorrel and Common Bent. Occasional species included Meadow Buttercup, Broad-leaved Dock *Rumex obtusifolius*, Yarrow *Achillea millefolium* and Timothy.

3.21 Field 6 consisted of a small triangular area fenced off from field 5. This field had a similar species composition to fields 7 and 8 to the south and they all appeared to be horse grazed and not mown, with areas of rabbit grazing. This semi-improved neutral grassland had frequent Red Bartsia, Red Fescue, Perennial Rye-grass, Yarrow and Yorkshire-fog. Occasional species included Cock's-foot, Meadow Buttercup, Hoary Ragwort, White Clover *Trifolium repens* and Common Bird's-foot-trefoil.

3.22 Field 9 occurred to the south of field 8 and was separated by fencing. It was also being grazed by 2 horses at the time of the survey. This field contained two types of grassland with the northern section similar in composition to the fields to the north (fields 6-8). To the south the grassland changed into unimproved neutral grassland with Perennial Rye-grass becoming rare and Crested Dog's-tail becoming more frequent. Species present included Common Knapweed, Ribwort Plantain, Red Clover and Oxeye Daisy *Leucanthemum vulgare*.

3.23 Fields 10 and 11 occurred to the west of field 9 and appeared to be in the location of an old orchard with a number of old Apple *Malus domestica* trees present within this area. The two fields were separated by a fence with southern section being used for exercising/training horses. Both these fields were species-rich and consisted of unimproved neutral grassland. Common Knapweed and Crested Dog's-tail were both abundant with frequent Yarrow, Burnet-saxifrage *Pimpinella saxifraga*, Red Fescue, Yorkshire-fog and Common Bent. Occasional species include Agrimony *Agrimonia eupatoria*, Quaking Grass *Briza media*, Red Clover, Oxeye Daisy, Red Bartsia, Common Bird's-foot-trefoil and Autumn Hawkbit *Leontodon autumnalis*.

Tall ruderal vegetation

3.24 Around several of the fields, areas of tall ruderal vegetation were present and these areas were dominated by Common Nettle, Creeping Thistle *Cirsium arvense* and Rosebay Willowherb *Chamerion angustifolium*.

Ponds

3.25 No ponds occurred on site, but target note 2 shows the location of a pond adjacent the field 4 to the south. This pond was dry at the time of the survey and heavily shaded by dense scrub.

Hedgerows

3.26 Eighteen Hedgerows were present on site and are shown in Table 3.1.

Table 3.1. Description of Hedgerows on site

Hedgerow number	Woody species present	Basic description
H1	Hazel, Holly, Common Hawthorn, Sycamore, Ash, Elder, Wild Cherry, Field Maple <i>Acer campestre</i> , Pedunculate Oak, Dog-rose <i>Rosa canina</i> and Apple.	Species-rich hedgerow on a hedgebank with a number of mature coppice stools and mature trees. Ground flora included Bluebell <i>Hyacinthoides non-scripta</i> and Wood Melick <i>Melica uniflora</i> .
H2	Field Maple, Pedunculate Oak, Ash, Elder, Hazel, Holly, Sycamore, Common Hawthorn, Wild Cherry, Apple and Blackthorn.	Species-rich hedgerow on a hedgebank with a number of mature coppice stools and mature trees.
H3	Common Hawthorn, Field Maple, Blackthorn, Pedunculate Oak and Hazel.	Species-rich hedgerow.
H4	Common Hawthorn, Dogwood <i>Cornus sanguineus</i> , Blackthorn, Pedunculate Oak, Dog-rose, Elder, Wild Cherry and Ash.	Species-rich hedgerow.
H5	Elder, Common Hawthorn, Blackthorn and Dog-rose.	Species-poor hedgerow with mature trees.
H6	Ash, Common Hawthorn, Dogwood, Holly, Pedunculate Oak, Rowan <i>Sorbus aucuparia</i> ,	Species-rich hedgerow.

	Elder and Wild Cherry.	
H7	Ash, Common Hawthorn, Blackthorn, Elder and Dog-rose.	Species-rich hedgerow with mature trees.
H8	Hazel, Ash, Pedunculate Oak, Common Hawthorn, Blackthorn, Holly, Wild Cherry and Spindle <i>Euonymus europaeus</i> .	Species-rich hedgerow with mature trees.
H9	Blackthorn, Pedunculate Oak and Common Hawthorn.	Species-poor hedgerow with mature trees.
H10	Blackthorn, Sycamore, Ash, Common Hawthorn, Hazel and Elder.	Species-rich hedgerow.
H11	Field Maple, Common Hawthorn, Hazel, Blackthorn and Elder.	Species-rich hedgerow.
H12	Elder, Common Hawthorn and Field Maple.	Species-poor hedgerow.
H13	Elder, Common Hawthorn, Ash and Holly.	Species-poor hedgerow.
H14	Blackthorn and Common Hawthorn.	Species-poor hedgerow.
H15	Scots Pine, Common Hawthorn, Hazel, Blackthorn, Elder, Ash and Field Maple.	Species-rich hedgerow with mature trees.
H16	Common Hawthorn, Pedunculate Oak, Ash, Sycamore, Larch, Wych Elm <i>Ulmus glabra</i> and Field Maple.	Species-rich hedgerow with mature trees.
H17	Pedunculate Oak, Holly, Ash, Common Hawthorn, Elder, Dog-rose, Field Maple and Hornbeam <i>Carpinus betulus</i> .	Species-rich hedgerow with mature trees.
H18	Wild Cherry, Sycamore, Blackthorn, Pedunculate Oak, Common Hawthorn, Dogwood, Sweet-briar <i>Rosa rubiginosa</i> , Beech, Holly and Ash.	Species-rich hedgerow.

Ecological scoping survey

Plant species

- 3.27 No nationally rare, nationally scarce or species listed as being of principal conservation importance in England, under Section 41 of the Natural Environment and Rural Communities Act 2006 were identified during the walkover.

3.28 Within the hedgerow along the northern edge of the site, Bluebells were recorded. Although Bluebell is listed in Schedule 8 of the Wildlife and Countryside Act 1981 (as amended), this only prohibits the sale of wild plants.

Invertebrates

3.29 Whilst the majority of the fields are not considered likely to support an invertebrate assemblage of conservation significance, there is potential for the more species-rich grassland, woodland and hedgerows to support some invertebrate interest.

Amphibians

3.30 No waterbodies were present on site and the grassland on site formed a short sward which would provide little to no suitable habitat for terrestrial amphibians. One pond was recorded to the south of the site within 10 m, but as it was dry at the time of the survey and heavily shaded it is unlikely to be used by amphibians.

Reptiles

3.31 The site contains no suitable habitat to support reptiles due to the short sward height of the grassland.

Birds

3.32 The hedgerows and woodland could support a number of breeding bird species, including common species and species of conservation concern.

3.33 The fields are very unlikely to be used by ground nesting birds due to the disturbance by (dog) walkers and grazing horses.

Mammals

Bats

3.34 A large number of the trees on site had potential for roosting bats (shown on Figure 3.1). These were mainly limited to the boundary hedgerows and woodland on site. The majority of these trees consisted of Pedunculate Oak and Ash trees with broken branches and suitable cavities present.

3.35 The majority of the field boundaries and woodland could potentially be used for foraging and commuting bats.

Other mammals

3.36 The hedgerows on site have sufficient structure and connectivity to provide habitat for Hazel Dormice *Muscardinus avellanarius*. No records for the species were reported within the data search.

3.37 The areas of open grassland provide suitable habitat for foraging Badger *Meles meles*, Hedgehog *Erinaceus europaeus* (although no evidence of either was found on site), and bat species.

3.38 No evidence of activity by protected mammal species such as Badger or Hedgehog were found on site.

4 EVALUATION

Designated sites

- 4.1 The nearest designated site (Green Wood LWS) is located approximately 500 m to the west of the proposed development site. It is not linked ecologically to the site and is beyond the zone of influence of any dust/noise that might be generated from construction activities. Therefore, no effects on designated sites from the development of the site are anticipated.

Habitats of potential conservation importance

- 4.2 Habitats present on the site were semi-natural woodland, plantation woodland, dense scrub, scattered scrub, semi-improved neutral grassland, unimproved neutral grassland, tall ruderal vegetation and hedgerows.
- 4.3 'Lowland mixed deciduous woodland' is a UK Biodiversity Action Plan (BAP) Priority Habitat (JNCC, 2009). However, the areas of plantation woodland to the south would not be included due to it being man-made. Despite this, the woodland has developed a relatively natural understorey and there is significant natural regeneration occurring. It also has some ecological value for wildlife, particularly bats and therefore it should be retained, if possible.
- 4.4 The two smaller areas of semi-natural woodland have a number of non-native species such as Sycamore and Larch, but the woodland to the west contains a number of characteristic woodland species, particularly Spurge-laurel which is an ancient woodland indicator and therefore it is likely that it would be of local ecological value. The area of woodland in the centre of the site also had a number of woodland species and included a mature Cherry which could be considered a veteran tree. As a number of trees within both sets of woodland also have bat roost potential, they would be considered of local conservation value.
- 4.5 The UK BAP priority habitat 'lowland meadows' includes three specific types of unimproved neutral grassland based on the National Vegetation Classification (Rodwell, 1991). These are MG3 *Anthoxanthum odoratum* – *Geranium sylvaticum* grassland, MG4 *Alopecurus pratensis* – *Sanguisorba officinalis* grassland and MG5 *Cynosurus cristatus* – *Centaurea nigra* grassland.
- 4.6 The unimproved grassland on site shows similarities to MG5 grassland with the presence of Crested Dog's-tail and Common Knapweed which are characteristic of this type of grassland and the virtual absence of Perennial Rye-grass. In particular, the grassland in fields 10 and 11 contained a number of calcareous indicator species such as Agrimony, Burnet Saxifrage and Quaking Grass which indicate that this grassland would most likely be classed as the MG5b sub-community which shows similarities with calcareous grassland. Due to the species richness of this grassland, it is considered to be of higher conservation value than the unimproved neutral grassland elsewhere on site, which would be of local conservation value only.
- 4.7 The grassland in fields 10 and 11 appeared to be situated in the remnants of an old orchard with a number of mature Apple trees within the grassland. Orchards are a UK BAP habitat and it is likely that this area of grassland would also be included within that UKBAP habitat, and therefore would increase the ecological value of this area.

- 4.8 The various semi-improved neutral grasslands on site would likely be included within a number of communities. The semi-improved neutral grassland in fields 6 to 9 would most likely be included within MG6 *Lolium perenne* - *Cynosurus cristatus* grassland due to the presence of Perennial Rye-grass and the limited presence of Crested Dog's-tail. MG6 grassland is also included in the UK BAP 'coastal and floodplain grazing marsh' priority habitat, but the definition of this specific habitat is as a mosaic interconnected by ditches usually occurring on a coastal or river floodplain. As the grassland on site does not occur within this framework, they would not be included in this UK BAP habitat.
- 4.9 Fields 1 to 3 and 5 are more difficult to classify as Perennial Rye-grass was only prominent in areas used as footpaths and the majority of the grassland was dominated by Yorkshire-fog, Red Fescue and Cock's-foot. These fields appear to be mown instead of grazed and this regular mowing has kept the abundance of False Oat-grass low, but despite this, it is most likely that it would be categorized as similar to MG1 *Arrhenatherum elatius* grassland due to the higher abundance of Cock's-foot and Red Fescue. Although the abundance of Yorkshire-fog indicates that it has similarities to the two communities which have this species as a constant, MG10 *Holcus lanatus* – *Deschampsia cespitosa* and MG11 *Holcus lanatus* – *Juncus effusus* rush pasture, these communities are characteristic of areas with high soil moisture, which is not considered to be the case here. As none of these grasslands occur within this UK BAP priority habitat framework, they would not be included and are not considered to be of conservation value.
- 4.10 All native hedgerows consisting predominantly of native woody species are included within the UK BAP priority habitat 'hedgerows'. All of the 18 hedgerows on site comprised native species and therefore would qualify.
- 4.11 None of the other habitats recorded on the site were of conservation concern.

Species

Invertebrates

- 4.12 The site offers suitable habitat to support a number of invertebrate species although it is not considered that the loss of the semi-improved neutral grassland habitat is significant at the local level, but the invertebrate fauna of the woodland, species-rich grassland and the majority of the hedgerows would be significant at the local level.

Birds

- 4.13 The hedgerows on the site and field margins are likely to support breeding birds. All birds and their nests are protected under the Wildlife and Countryside Act 1981 (as amended).

Mammals

Bats

- 4.14 A large number of trees on site were identified as having bat roost potential, but the majority of these trees occurred along the site boundary and it is considered that with suitable site design these should not be adversely affected. The three areas of woodland on site also contained a number of trees with bat roost potential and should be retained if possible.

-
- 4.15 If any trees or areas highlighted as having bat roost potential are to be removed then a more detailed survey should therefore be undertaken to determine whether they are being used by bats.
- 4.16 The field boundaries and mature woodland are likely to be used by commuting and foraging bats and therefore it is recommended that the hedgerows and woodland should be retained to maintain these flight routes. Such habitat is likely to be considered of at least medium habitat quality for bats (Hundt 2012) on the basis that the fields are grazed and the boundaries are well established. The site is also well connected with the surrounding countryside.

5 IMPLICATIONS TO THE DEVELOPMENT

Designated sites

- 5.1 No impacts are anticipated on nearby designated sites from the development of the site.

Habitats of potential conservation importance

- 5.2 The woodland on site is of ecological value and therefore consideration should be given to retaining these areas of woodland and incorporating them into the scheme design where possible.
- 5.3 The unimproved neutral grassland would be considered to be included within the UK BAP habitat 'lowland meadows', particularly the species-rich grassland in fields 10 and 11 which are of higher ecological value and would also be included within the UK BAP habitat 'orchards'. Consideration should be given to retaining this area of grassland within the site design, the encroaching scrub should be reduced and the remaining Apple trees retained and managed appropriately. The unimproved grasslands in Fields 9 and 4 are of local conservation value and if they cannot be retained, suitable mitigation would include the creation of new species-rich grassland elsewhere in the site design within an area of Public Open Space. This new grassland should be similar in species composition to the grassland in fields 10 and 11.
- 5.4 The semi-improved neutral grassland on site is not considered to be of significant conservation value and therefore these areas should not impact on the development.
- 5.5 As the native hedgerows on site are of conservation value, any loss should be mitigated for. The majority of the hedgerows occur along the site boundary and it is recommended that, where possible, these should be retained, in particular the two hedgerows along the northern boundary of the site which are adjacent to a footpath and included a number of characteristic woodland plant species, a large number of trees with bat roost potential and is likely to be of ancient origin.

Species

Invertebrates

- 5.6 It is considered that retaining the species-rich grassland, woodland and majority of the hedgerows on site would ensure that invertebrate assemblage on site is not significantly affected. It is recommended that areas of dead wood taken from trees to be lost within the development should be placed within the woodland to create new habitat for invertebrates. It is also considered that the creation of more species-rich grassland will also enhance the amount of good quality habitat on site.

Birds

- 5.7 The hedgerows on the site and field margins are likely to support breeding birds. Any vegetation clearance required for construction should ideally be carried out during September to February inclusive to avoid potential impacts on breeding birds.

- 5.8 If construction takes place during the bird breeding season (March – August), an ecologist should check the site prior to works commencing for breeding ground nesting birds. Any nests found should be left undisturbed until the chicks have fledged. No other significant impacts from construction are expected.
- 5.9 Given the site location, the habitats present and the large number of bird records returned for the area, it is possible that the site supports a breeding bird assemblage of note. Therefore, subject to discussions with the Local Authority Ecologist, breeding bird surveys of the site may be necessary. These would involve an ecologist walking the site at dawn on five separate occasions spread through the breeding season (March to June). Birds noted (both by sight and through calls) would be recorded and territories extrapolated to provide an overview of the number and species of birds breeding on the site.

Mammals

Bats

- 5.10 Several trees on site were identified as having bat roost potential, the majority of these trees occurred along the site boundary and should be retained and therefore would not be impacted upon by construction.
- 5.11 There are a number of hedgerows that occur within the site which have trees with bat roost potential if these are to be lost then more detailed bat surveys should be undertaken. If roosting bats are found to be present in any trees within the development site, ideally the roosts should be retained. However, if felling of occupied trees is unavoidable, bat exclusion works will need to be undertaken. Any loss of roosts or disturbance to roosting bats will require a licence from Natural England. As part of the licence, mitigation in the form of a replacement roost would need to be provided before exclusion works could be undertaken.
- 5.12 If trees with bat roost potential are to be lost, then appropriate bat emergence surveys should be undertaken, which would involve three survey visits being undertaken between mid May to early September, with suitably qualified surveyors watching trees from suitable vantage points from dusk for around 90 minutes to note any bats emerging from them.
- 5.13 The hedgerows and woodland on site provide bat commuting/foraging potential. On the basis that the site is of at least medium quality for foraging bats, subject to discussion with the Local Authority Ecologist, bat activity surveys may be required. Current good practice guidelines (Hundt 2012) for a site of this nature require monthly visits between May and October. At each visit, transect routes would be walked with suitable bat detection equipment.
- 5.14 Transects would be walked at an even pace, with all bat activity being recorded. The activity transects include stopping points along the route. At each point, bat activity would be recorded for five minute periods. Transects are started a half hour before sunset and continue for two hours after sunset, or two hours prior to dawn and half an hour after.
- 5.15 Transect routes around the study area are selected to encompass all areas of habitat, potential flight lines from suitable adjacent habitat off site, and covered as much of the site as is accessible.

- 5.16 All bat passes are noted, and all bats were identified to species level, where possible, on site. Echolocation calls would be recorded and subsequently analysed using computer software (BatSound Sound Analysis) for confirmation. Where possible, additional notes on size, flight height, type of flight (such as commuting, foraging, fast or slow) and direction of flight are recorded during the survey.
- 5.17 The main options for mitigating the loss of bat roosts in trees include the erection of bat boxes (at a ratio of >3 bat boxes per tree being felled) and attaching the section of the trunk with the roost cavity to a nearby tree in a similar situation to its original position.
- 5.18 Given the sensitivity of some bat species to disturbance from lighting, land around the development should be screened from light pollution either by retaining and enhancing the existing tree belts or by a mixture of landscape planting (e.g. tree belts or dense hedgerow planting) or other screening options such as bunds and fencing. Landscape planting such as tree belts would also provide additional foraging habitat for bats.
- 5.19 Light pollution should also be minimised by the use of modern lighting schemes and restrictions on private security lighting on properties adjacent to woodland or other bat foraging / commuting habitat (e.g. through planning measures such as covenants or similar enforceable restrictions). Lighting should comprise low UV lighting fitted with baffles and short column heights to reduce light overspill when in use. Timers or sensors could also be used to reduce the amount of time the lights are in use during quiet periods.

6 CONCLUSIONS

- 6.1 The site contained several areas of plantation woodland, semi-natural woodland, dense scrub, unimproved neutral grassland, semi-improved neutral grassland, hedgerows and tall ruderal vegetation.
- 6.2 It is considered that the three areas of woodland have ecological value and should be retained within the development.
- 6.3 The unimproved neutral grassland would be considered to be included within the UK BAP habitat 'lowland meadows', particularly the species-rich grassland in fields 10 and 11 which are of higher ecological value and would also be included within the UK BAP habitat 'orchards'. Consideration should be given to retaining this area of grassland within the site design, the encroaching scrub should be reduced and the remaining Apple trees retained and managed appropriately. The unimproved grasslands in Fields 9 and 4 are of local conservation value and if they cannot be retained, suitable mitigation would include the creation of new species-rich grassland elsewhere in the site design within an area of Public Open Space.
- 6.4 All the hedgerows on site are of conservation value, it is recommended that, where possible, the hedgerows along the site boundary should be retained.
- 6.5 Minimising impacts on hedgerows, woodland and species-rich grassland would avoid significant impacts on invertebrates. Creating new species-rich grassland and the addition of log piles within the woodland would also enhance the amount of suitable habitat on site.
- 6.6 The woodland, hedgerows and scrub on site were identified as potentially supporting breeding bird species of conservation interest. Any vegetation clearance required for construction should ideally be carried out during September to February inclusive to avoid potential impacts on breeding birds.
- 6.7 Further, given the nature and size of the site, breeding bird surveys are likely to be required, subject to discussion with the Local Authority Ecologist.
- 6.8 A large number of trees on site were identified as having bat roost potential, but the majority of these trees occurred along the site boundary and within woodland, both of which should be retained within the development. A number of the trees occurred outside these areas and could potentially be lost during development of the site. A detailed survey should therefore be undertaken of any trees to be lost to determine whether they are being used by bats.
- 6.9 The hedgerows and woodland are likely to be used by commuting and foraging bats, but the majority of these would be retained and would maintain these flight routes. However, given the quality of the site with respect to foraging bats, it is likely that, subject to discussion with the Local Authority Ecologist, suitable bat activity surveys are undertaken to ensure that this is fully assessed. Consideration should be given to maintaining habitat connectivity between the site boundary and the woodland in the centre of the site.

7 REFERENCES

Arnold, H.R. 1993. *Atlas of mammals in Britain*. JNCC and ITE.

BSBI (2007). *Checklist of the British & Irish Flora*. Available from: <http://www.bsbi.org.uk/html/database.html> [Accessed August 2013].

Harris, S. and Yalden, D.W. 2008. *Mammals of the British Isles. 4th edition*. The Mammal Society

Hundt L. (2012) *Bat surveys: Good practice guidelines 2nd Edition*. Bat Conservation Trust

JNCC (29th October 2008). *Downloadable spreadsheet of "Conservation Designations for UK Taxa"*. Available from: www.jncc.gov.uk [Accessed August 2013].

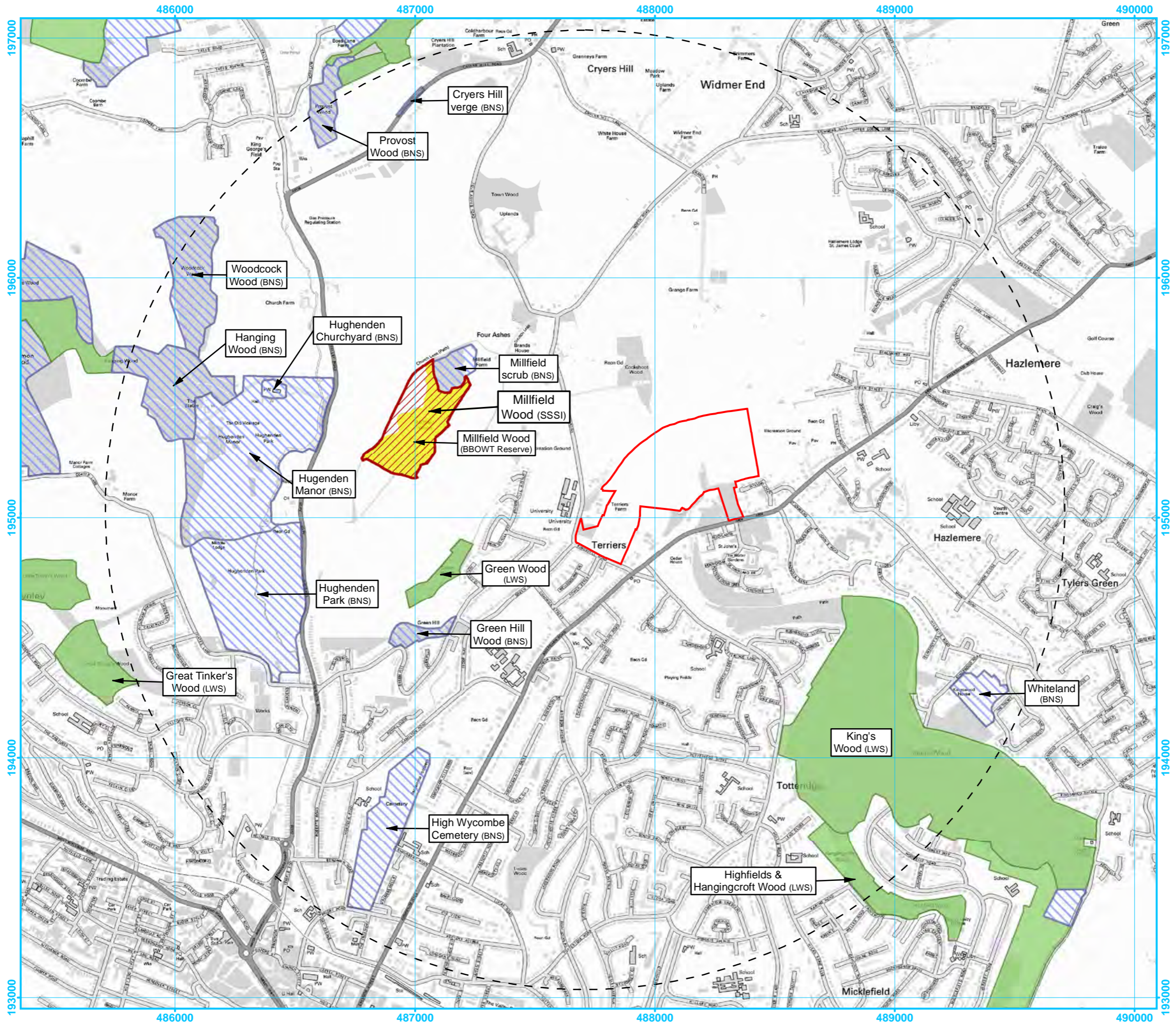
JNCC (2003). *Handbook for Phase 1 habitat survey: a technique for environmental audit* (revised reprint). Joint Nature Conservation Committee, Peterborough.

JNCC (2009). *UK Biodiversity Action Plan*. Available from: www.ukbap.org.uk [Accessed August 2013].

Rodwell (1992) *British Plant Communities Volume 3: Grasslands and montane communities*. Cambridge University Press, Cambridge.

8 FIGURES

Figure 3.1 Designated sites within 2 km



Legend

- Site boundary
- 2km site buffer
- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LWS)
- Biological Notification Site (BNS)
- BBOWT Reserve

Rev:	Date:	Amendment:	Name:	Checked:

■ Data Source: RPS 2013
 Status: **FINAL**



Willow Mere House Compass Point Business Park Stocks Bridge Way
 St. Ives Cambridgeshire PE27 5JL
 T 01480 302751 F 01480 466911 E rps@rpsgroup.com

■ Client:
 Project: Terriers Farm, High Wycombe

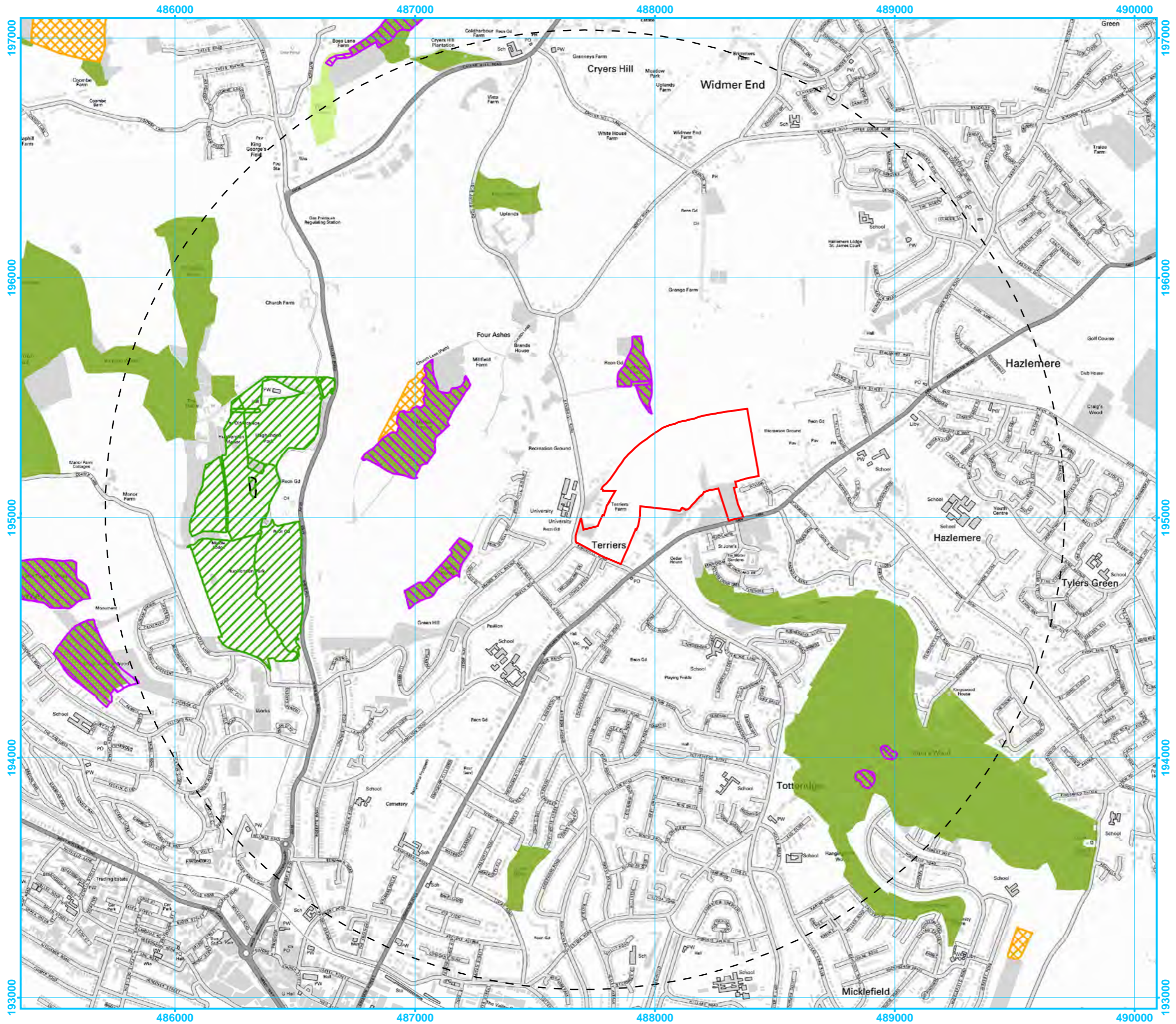
Title: **Statutory and Non-Statutory Sites**

Scale: 1:16,000 @A3
 0 100 200 400 600 800m

Projection: British National Grid Datum: OSGB36
 Date: 30/09/2013 Drawn: BF Checked: MF

■ Job Ref: **JPP3200** Fig No: **3.1** Rev: **A**

Figure 3.2 UKBAP Habitats within 2 km



Legend

-  Site boundary
-  2km site buffer
-  Lowland Beech Yew Woodland
-  Lowland Wood-pasture and Parkland
-  Lowland Calcareous grassland
-  Ancient and Semi-Natural Woodland
-  Ancient Replanted Woodland

Rev:	Date:	Amendment:	Name:	Checked:


■ Data Source: RPS 2013
 Status: **FINAL**



Willow Mere House Compass Point Business Park Stocks Bridge Way
 St. Ives Cambridgeshire PE27 5JL
 T 01480 302751 F 01480 466911 E rps@rpsgroup.com

■ Client:
 Project: Terriers Farm, High Wycombe

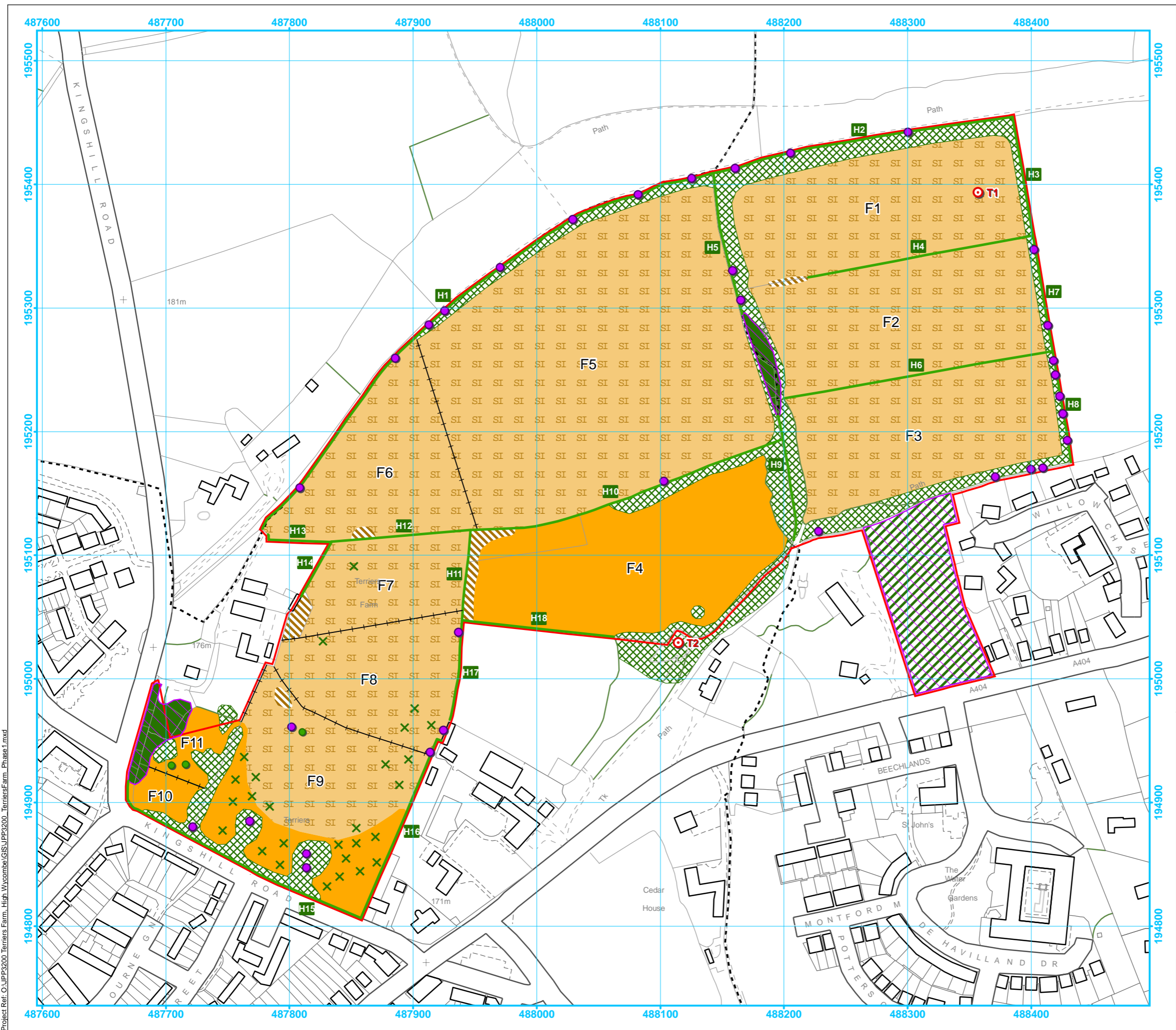
Title: UKBAP Habitats within 2km of Site

Scale: 1:16,000 @A3
 0 100 200 400 600 800m 

Projection: British National Grid Datum: OSGB36
 Date: 30/09/2013 Drawn: BF Checked: MF

■ Job Ref: **JPP3200** Fig No: **3.2** Rev: **A**

Figure 3.3 Phase 1 Habitat map



- Legend**
- Site boundary
 - Broad leaved semi-natural woodland
 - Broad leaved plantation woodland
 - Dense scrub
 - Semi-improved neutral grassland
 - Unimproved neutral grassland
 - Tall ruderal
 - Woodland with bat roost potential
 - Fence
 - Hedge (with reference number)
 - Scattered trees
 - × Scattered scrub
 - Tree with bat roost potential
 - ⊙ Target note
 - F1 Field number

Rev:	Date:	Amendment:	Name:	Checked:
<p>■ Data Source: RPS 2013</p> <p>Status: FINAL</p>				
<p>Willow Mere House Compass Point Business Park Stocks Bridge Way St. Ives Cambridgeshire PE27 5JL T 01480 302751 F 01480 466911 E rpscm@rpsgroup.com</p>				
<p>■ Client:</p> <p>Project: Terriers Farm, High Wycombe</p>				
<p>Title: Phase 1 Habitat Survey</p>				
<p>Scale: 1:3,000 @A3</p> <p>0 10 20 40 60 80 100 120m </p>				
<p>Projection: British National Grid Datum: OSGB36</p> <p>Date: 30/09/2013 Drawn: BF Checked: MF</p>				
<p>■ Job Ref: JPP3200 Fig No: 3.3 Rev: A</p>				
<p>www.rpsgroup.com</p>				

Project Ref: O:\JPP3200 Terriers Farm, High Wycombe\GIS\JPP3200_TerriersFarm_Phase1.mxd

APPENDIX 1 – NON-STATUTORY DESIGNATED SITES

Designation	Site name	Description
Local Wildlife Site	Great Tinkers Wood	Diverse Beech woodland. Also supports the nationally scarce wood barley <i>Hordelymus europaeus</i>
Local Wildlife Site	Green Wood	Beech woodland with many Ancient Woodland indicators
Local Wildlife Site	Highfield & Hangingcroft Wood	Semi-natural ancient Beech woodland
Local Wildlife Site	King's Wood	Semi-natural ancient Beech woodland
Biological Notification site	Hanging Wood	Beechwood with pond
Biological Notification site	High Wycombe Cemetery	Cemetery with relic chalk grassland
Biological Notification site	Millfield scrub	Scrub with good chalk flora.
Biological Notification site	Hughenden Park	Parkland, open to public. Park designed by Capability Brown.
Biological Notification site	Hughenden Churchyard	Churchyard with mostly sheep-grazed turf. Site bounded by hedges, fences and walls.
Biological Notification site	Green Hill Wood	Deciduous woodland
Biological Notification site	Hugenden Manor	Parkland with river/stream
Biological Notification site	Cryers Hill verge	Verge on northern side of A4128
Biological Notification site	Woodcock Wood	Woodland
Biological Notification site	Provost Wood	Woodland
Biological Notification site	Whiteland	Field with scattered clumps of hawthorn and other trees

APPENDIX 2 - BIRD DATA SEARCH RESULTS

Common Name	Scientific name	Year of most recent record	Conservation status
Skylark	<i>Alauda arvensis</i>	2001	BoCC Red, UKBAP, LBAP
Meadow Pipit	<i>Anthus pratensis</i>	2011	BoCC Amber, LBAP
Lesser Redpoll	<i>Carduelis cabaret</i>	2011	BoCC Red
Linnet	<i>Carduelis cannabina</i>	2008	BoCC Red, UKBAP, LBAP
Stock Dove	<i>Columba oenas</i>	2011	BoCC Amber
Cuckoo	<i>Cuculus canorus</i>	2011	BoCC Red
House Martin	<i>Delichon urbicum</i>	2010	BoCC Amber, LBAP
Swift	<i>Apus apus</i>	2010	BoCC Amber, LBAP
Lesser-spotted Woodpecker	<i>Dendrocopos minor</i>	2010	BoCC Red
Yellow Hammer	<i>Emberiza citrinella</i>	2011	BoCC Red, LBAP
Hobby	<i>Falco subbuteo</i>	2002	WCA 1, LBAP
Kestrel	<i>Falco tinnunculus</i>	2010	BoCC Amber, LBAP
Brambling	<i>Fringilla montifringilla</i>	2011	WCA 1
Swallow	<i>Hirundo rustica</i>	2011	BoCC Amber, LBAP
Herring Gull	<i>Larus argentatus</i>	2010	BoCC Red
Mew Gull	<i>Larus canus</i>	2011	BoCC Amber
Red Kite	<i>Milvus milvus</i>	2011	BirdsDir 1, WCA 1, BoCC Amber
Grey Wagtail	<i>Motacilla cinerea</i>	2003	BoCC Amber, LBAP
House Sparrow	<i>Passer domesticus</i>	2011	BoCC Red, UKBAP, LBAP
Grey Partridge	<i>Perdix perdix</i>	2003	BoCC Red, UKBAP, LBAP
Willow Warbler	<i>Phylloscopus trochilus</i>	2011	BoCC Amber
Green Woodpecker	<i>Picus viridis</i>	2011	BoCC Amber, LBAP
Dunnock	<i>Prunella modularis</i>	2011	BoCC Amber, LBAP
Bullfinch	<i>Pyrrhula pyrrhula</i>	2011	BoCC Amber, UKBAP, LBAP
Starling	<i>Sturnus vulgaris</i>	2011	BoCC Red, LBAP
Whitethroat	<i>Sylvia communis</i>	2011	BoCC Amber
Redwing	<i>Turdus iliacus</i>	2011	WCA 1, BoCC Red, LBAP
Song Thrush	<i>Turdus philomelos</i>	2005	BoCC Red, UKBAP, LBAP
Fieldfare	<i>Turdus pilaris</i>	2011	WCA 1, BoCC Red
Ring Ouzel	<i>Turdus torquatus</i>	2011	BoCC Red
Mistle Thrush	<i>Turdus viscivorus</i>	2011	BoCC Amber
Barn Owl	<i>Tyto alba</i>	2002	WCA 1, BoCC Amber, LBAP
Lapwing	<i>Vanellus vanellus</i>	2010	BoCC Red, LBAP

HabReg – Schedule 2 of the Conservation of Habitats and Species Regulations 2010, **BirdsDir 1** – Schedule 1 of the Birds Directive **WCA1** - Wildlife and Countryside Act 1981 Schedule 1 **WCA 5** - Wildlife and Countryside Act 1981 Schedule 5, **WCA 8** - Wildlife and Countryside Act 1981 Schedule 8, **BoCC Red** - Birds of Conservation Concern – Red list (Eaton *et al.* 2009), **UKBAP** - UK Biodiversity Action Plan Priority Species, **LBAP** – Local Biodiversity Action Plan.

