Blue Cross Rehoming Centre, Kimpton Bottom, Hitchin, Hertfordshire

Preliminary Roost Assessment for Bats



For **Blue Cross**

12th September 2017

Issue: 1

***B*ernwood *ECS* Ltd**

Hensmans Farm

Nearton End

Swanbourne

Bucks

MK17 0SL

✆ 01296 728351 · ✉ enquiries@bernwood.net · www.bernwood.net

Limitations
Ecological assessments can only assess a site at a particular time. This evidence can be used to draw conclusions as to the likely presence or absence of species (animals and plants), population size, use of the site by animals; it is neither definitive nor complete.

Any survey is a snapshot in time and should not be regarded as a complete study. Seasonality and weather conditions may also affect survey results.

The preparation of mitigation strategies, consultation exercise and submission of any licence applications cannot be relied upon until approved [licensed] in writing by third parties. Allowance must be made for both programme and financial change to projects as a result of application failure, amendment or refusal.

Every effort has been taken to provide an accurate assessment of the situation pertaining to this site and information available at the time of the preparation of this report, but no liability can be assumed for omissions, or subsequent changes to design and development.

Surveys have been based on anticipated work resulting from instruction and information supplied at the time of request. Additional works should be anticipated as surveys and proposals for the site progress.

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Report Details	
Site	Blue Cross Rehoming Centre, Kimpton Bottom, Hitchin, Hertfordshire
Report Title	Preliminary Roost Assessment for Bats
Client	Blue Cross
Job number	Blue Cross
Issue Date	12th September 2017
Data Search	Herts Environmental Records Centre
Surveyor(s)	E. Dickins ACIEEM
Report Author	E. Dickins ACIEEM
Report Editor	E. Dickins ACIEEM
Proof Reading	C. Damant MCIEEM

Executive Summary

A Preliminary Roost Assessment for bats was undertaken by Bernwood on 29th August 2017 of The Blue Cross Rehoming Centre, Kimpton Bottom, to inform proposals for the demolition of some buildings and modifications of others.

The survey is supported with a data search from the Hertfordshire and Environmental Records Centre. The data search identified one non-statutory site within 1km which is not on or adjacent to the site. A small number of records for protected species were also returned with the data search including wild birds and bats.

The Preliminary Roost Assessment recorded no evidence of bats in any of the surveyed structures. The buildings have a negligible to low suitability for supporting roosting bats. Slipped and missing roof tiles on the Managers House and reception building have the potential to support crevice dwelling bats. The buildings also offer suitability to support common species of wild nesting bird as do the hedgerows and trees on site.

Recommendations are made to time the demolition and works during least sensitive times for bats, for a late discovery protocol for bats and to check for wild nesting birds. Recommendations for net biodiversity gains are also made.

1. Introduction

1.1. Bernwood have been instructed by the Blue Cross through Artisan Planning (Pippa Short) on 16th August 2017 to undertake a Preliminary Roost Assessment (PRA) of the buildings on site subject to planning permission.

1.2. The Blue Cross Rehoming Centre, Kimpton Bottom, Hitchin, Hertfordshire, SG4 8EU (TL 15811 17448) is an animal rehoming centre with 15/16 buildings on site, including the rehoming centre reception, managers house, staff accommodation, staff room, cattery, kennels, stables and ancillary buildings such as wooden storage sheds (Appendix 1).

1.3. Proposals are for the demolition of three buildings on site, including the managers house, stables and wooden storage sheds and the modification of the reception building (Buildings 7, 8 & 9), the staff room (Building 16), the cattery (Building 11) and cat chalets (Building 6) as well as the remodelling of the existing entrance to provide improved car parking facilities, a new site entrance off and the construction of a number of new buildings on site for rehoming animals and a new house for the site manager (Appendix 2).

1.4. The Local Planning Authority (Hertfordshire County Council) have provided comments to the planning consultants which included advice to provide a Preliminary Roost Assessment (PRA) for bats and replace the loss of a ~40m section of hedge with a longer section of new hedgerow on site.

2. Legal Protection

2.1. The following information is a simplified summary of the legislation and the full text of the Wildlife & Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2010 and other legislation together with current published guidelines should be consulted.

2.2. The finding of this report represents the professional opinion of qualified ecologists and does not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this report.

European Protected Species

2.3. All European Protected Species (EPS; great crested newts, bats, otter, white clawed crayfish, hazel dormice etc.) are protected under the Conservation of Habitats and Species Regulations 2010 (2010 Regulations) and the Wildlife and Countryside Act 1981 (as amended) (WCA 1981). EPS include, for

example, great crested newts and bats. It is an offence under section 41 of the 2010 Regulations to:

- deliberately capture, injure or kill any wild animal of a EPS;
- deliberately disturb a EPS (including in particular any disturbance which is likely to impair their ability to survive, breed or reproduce, rear or nurture their young; or to hibernate or migrate; or which affects significantly the local distribution or abundance of the species);
- deliberately take or destroy the eggs of a EPS;
- damage or destroy a breeding site or resting place of a EPS; or
- possess, control, transport, sell or exchange, or offer for sale or exchange, any live or dead wild animal of a EPS, or any part of, or anything derived from a EPS.

2.4. Section 9(4) (b) and (c) of the WCA 1981 makes it an offence to:

- intentionally or recklessly disturb a EPS while it is occupying a structure or place which it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any structure or place which any EPS uses for shelter or protection.

2.5. In order for otherwise illegal acts to proceed lawfully, an appropriate licence must be sought under the 2010 Regulations and WCA 1981. Licences for the purpose of development are currently determined by Natural England and must include an appropriate mitigation and monitoring scheme to secure the "favourable conservation status" of the species in the local area.

Water Vole

2.6. Water voles are fully protected under Section 9 of the Wildlife & Countryside Act 1981 (as amended). It is an offence to:

- intentionally kill, injure or take (capture) a water vole;
- possess or control a live or dead water vole, or any part of a water vole;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or disturb water voles while they are using such a place;
- sell, offer for sale or advertise for live or dead water voles.

2.7. Licences are available from Natural England to allow activities that would otherwise be offences for:

- scientific or educational purposes;
- the purpose of ringing or marking;
- conserving wild animals or introducing them to particular areas;

- preserving public health or public safety;
- preventing the spread of disease;
- preventing serious damage to any form of property or to fisheries.

2.1. There is no provision under wildlife legislation for licensing what would otherwise be offences for the specific purpose of development, maintenance or land management, but consideration will be given to licensing a development proposal if licensable actions will provide a conservation benefit for water voles.

Common Species of Reptiles

2.2. Common species of reptiles (grass snakes, adder, slow worm and common lizard) are protected under the WCA 1981. These species receive partial protection under Section 9(1) and section 9(5). It is an offence to:

- intentionally kill or injure a common species of reptile; or
- sell, or attempt to sell a live or dead reptile or any part of or anything derived from it.

Wild Birds

2.3. Wild birds are protected under the WCA 1981. The degree of protection depends on the species and, in some cases, the time of year. The basic principle of the Act is that all wild birds, their nests and eggs are protected by law and some rarer species are afforded special protection. Wild birds are defined as those resident in or visitors to Great Britain, in a wild state (does not include poultry or game bird). Section 1(1) of the WCA 1981 states that it is an offence to intentionally or recklessly:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use or being built; or
- take or destroy an egg of any wild bird.

2.4. Section 1(2) of the WCA 1981 states that it is an offence to possess or control any live or dead wild bird or any part of or anything derived from a wild bird or an egg or part of an egg of a wild bird.

2.5. It is an offence under section 1 (5) of the WCA 1981 to intentionally or recklessly:

- disturb any wild bird included in schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young;
- disturb dependent young of such a bird.

Badger

2.6. Badgers are protected under the Protection of Badgers Act 1992 (PBA 1992). It is an offence (expect as permitted by or under the PBA 1992) to:

- willfully kill, injure or take a badger or to attempt to do so;
- cruelly ill-treat a badger;
- intentionally or recklessly interfere with a badger sett by damaging or destroying a badger sett or any part of it or obstructing access to, or any entrance of, a badger sett; causing a dog to enter a badger sett; or disturbing a badger when it is occupying a badger sett;
- possess or have control of a dead badger or a part of or anything derived from a badger; or
- sell or offer for sale a live badger or to possess or have control of a live badger.

3. Planning

3.1. The local planning authority has the power to request information under Article 4 of the Town and Country (Planning Applications) Regulations 1988 (SI1988.1812) (S3) which covers general information for full applications.

3.2. The National Planning Policy Framework (NPPF) published in 2012 requires the planning system and policies to balance economic, social and environmental factors of sustainable development. Chapter 11 states: the planning system must contribute to and enhance the local environment by protecting and enhancing valued landscapes, recognising the wider benefits of ecosystem goods and services and minimise impacts on biodiversity and provide net gains where possible including establishing ecological networks that are resilient to pressures. More recently (spring 2014) habitat losses, gains and enhancement values are being assessed by some Local Planning Authorities using a Biodiversity Offsetting Matrix. Planning permission should be refused if: significant harm from a development cannot be adequately avoided, adequately mitigated, or as a last resort compensated for. The presumption in favour of development does not apply where development requiring appropriate assessment under the Birds or Habitats Directive is being considered, planned or determined. Planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscape and nature conservation. Please see updated Planning Practice Guidance https://www.gov.uk/government /speeches/local-planning.

3.3. Section 99 of ODPM Circular 06/2005 states: It is essential that the presence or otherwise of protected species, and the extent that they may be affected by

the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted. However, bearing in mind the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by development. Where this is the case, the survey should be completed and any necessary measures to protect the species should be in place, through conditions and / or planning obligations, before permission is granted.'

3.4. Local authorities have a duty to consider the three derogation 'tests' of the Habitats Directive: no satisfactory alternative, imperative reasons of overriding public interest (including those of a social or economic nature or beneficial consequences for the environment) and that the favourable conservation status of the species will be maintained. If any of these requirements are not met, the local authority should refuse planning permission regardless of any commitment to obtain a Natural England licence.

3.5. It is essential that the presence of a protected species, the impact of the proposed development upon them and sufficient proposed mitigation and/or compensation measures are established before planning permission can be granted.

4. Methodology

Data Search

4.1. A data search was undertaken with the Herts Environmental Records Centre (HERC) for protected species and sites records within a 1km search area and 2km for records of bats.

Preliminary Roost Assessment

4.2. The purpose of the Preliminary Roost Assessment (PRA) is to assess whether there are actual or potential bat roosts present. If so, the assessment searches for evidence to indicate:

- which species are present
- an indicative roost size
- roost access points
- a roost type
- whether further survey effort is required in relation to the proposals

4.3. The PRA was carried out by E. Dickins ACIEEM (2016-27135-CLS-CLS) on the 29th August 2017. The buildings subject to demolition or modification (Appendix 3) were systematically searched internally and externally (from the ground) for evidence indicating the presence of bats (live and dead bats, staining at potential roost entry points, droppings and urine marks) and assessing the buildings suitability for supporting a bat roost.

4.4. Equipment available for use during the PRA included ladders, high powered torches, binoculars, endoscope, digital camera and sample jars (for collecting droppings for subsequent DNA analysis if required).

4.5. The weather during the survey was hot and dry with temperatures ~24°C.

4.6. Two sections of hedgerow to be removed to facilitate the new buildings and the new site entrance were assessed for ecological value, as well as the areas to be subject to new buildings (Buildings 4, 5 & 6) and the remodelling of the existing site entrance for revised car parking.

5. Constraints and Limitations

Data Search

5.1. Environmental records can provide an indication of the likely presence of a species on, or within proximity, to the site. The absence of records for protected species and sites does not necessarily indicate absence. The use of historical environmental records is not a substitute for appropriate surveys at the correct time of year when informing land use change and development proposals.

5.2. Qualifications for historical records, e.g. if a badger record is for a sett or a road traffic casualty, may not always be known.

5.3. Data search record accuracy is variable, and will often range from 10km to 1m. Most commonly, accuracy will be within 10m. The original raw data from data searches should be consulted where the record accuracy is needed.

5.4. Bats are a highly mobile species and move throughout a landscape often using multiple roost sites (depending on the species). Bats may be found in any suitable roosting cavity or void at any time of the year.

6. Results and Discussion

Data Search

6.1. There is one non-statutory sites within 1km of the site which is listed on the Ancient Woodland Inventory. A number of land parcels have been identified by HERC as part of the ecological network mapping project, some of which surround the site. These land parcels are considered important in the connectivity of the local ecological networks and should be ...*'protected by the development management system*' (HERC). There are a small number of protected species records within 1km and 2km of the site. These are summarised below (Table 1). A copy of the data search map is included (Appendix 4).

Table 1. Summary of data search results within 1km of the site boundary for protected species records. LWS – Local Wildlife Site. WCA Sch1 – Wildlife and Countryside Act 1981 (as amended) Schedule 1 species. EPS – European protected Speices

Site/Species	Designation (highest)	Year of latest Record	Approx distance from the site to grid reference	Details
Bishey Wood	LWS	1997	430m	Ancient semi-natural Pedunculate Oak/Hornbeam woodland with some Wild Cherry. A large amount of mature Hornbeam coppice is present with occasional Pedunculate Oak standards. There are some old pollarded Hornbeams on the woodland boundary. The ground flora supports ancient woodland indicators dominated by Bluebell and a pond adds to the habitat diversity. Wildlife Site criteria: Ancient Woodland Inventory site; woodland indicators.
Red kite *Milvus milvus*	WCA Sch1	2013	1.6km	Bower Heath (20 birds seen)
Badger *Meles meles*	PBA	2012	1.3km	South of Claggybottom (dead on road)
Chiroptera (a bat species)	EPS	2015	235m	Vague site. Roost identified by droppings.
Natterers bat *Myotis nattereri*	EPS	2008	1.20km	Vague site. Field observation. A nursery colony of 20 bats was also recorded at the same location in 1997.
Common pipistrelle *Pipistrellus pipistrellus*	EPS	2010	2.00km	Vague site. Field observation.
Pipistrelle *Pipistrellus* sp.	EPS	2006	Unknown.	Very vague site. Field observation.
Brown long-eared *Plecotus auritus*	EPS	2008	1.25km	Vague site. Field observation.
Serotine *Eptesicus serotinus*	EPS	2005	715m	Vague site. Field observation.
Daubenton's *M. daubentonii*	EPS	1987	Unknown	Very vague site. Recorded from transect survey.

Preliminary Roost Assessment

6.2. The site is located within Hertfordshire surrounded by farmland with low density housing. Woodlands are small and scattered and the nearest significant water body is the River Lea which passes through Harpenden 2.5km away.

6.3. The site is under the ownership of the Blue Cross and has been for many years, previously used as a dog kennels for police canines. This has lead to a series of amendments and add-on buildings to meet the Blue Crosses growing requirements as an animal rehoming charity for the area. Two staff members live on site. Other buildings are in use as catteries, kennels, stables, reception and meet rooms for perspective adopters. The buildings are constructed from a variety of materials and the majority have a low or negligible suitability to support bats. A summary of the building subject to the PRA are detailed below (Table 2).

6.4. A section of hedgerow to be removed between the existing stables and the Managers House was comprised of field maple *Acer campestre*, rose *Rosa* sp., and ivy *Hedera helix*. An adjoining hedgerow along the morth western boundary is denser and more regularly cut, probably as this is parallel to a road. Oak *Quercus* sp., blackthorn *Prunus spinosa*, hazle *Corylus avellana*, bramble *Rubus fruticosus* and sycamore *Acer psuedoplatanus* were recorded in this hedgerow where a small section will be removed to create the new site access.

6.5. A mature whitebeam *Sorbus* sp. grows within the garden of the Managers House, a mature oak *Quercus* sp. is north of the stables roadside and three mature cherry *Prunus* sp. trees with bird boxes grow south of the existing site entrance. The trees are all of sufficient age and size to potentially have features suitable for supporting bats and their roosts.

Table 5. Summary of findings from the PRA survey with a description of the buildings.

Building	Description	PRA findings	Suitability for supporting bats and their roosts
Stables	Wooden constructed (Fig 1). Approximately 50m^2. Corrugated sheet roofing material. Used mostly for equestrian storage. To be demolished.	No evidence of bats seen.	Negligible
Three wooden sheds	Constructed from wood (Fig 2). Approximately 33m^2. Used for storage. Internal areas not accessed. To be demolished.	No evidence of bats seen on external areas.	Negligible
Managers House	Single storey building (Fig 3). Approximately 95m^2. Constructed from red brick. Roof void with thick layer of fibre glass quilt insulation which limited the access into the roof void by the surveyor who remained in the hatchway. Machine made clay roof tiles, some of which have slipped or are missing. Tiles are laid directly onto battening with no roof lining present (Fig 4). Chimney present with lead flashing.	No evidence of bats seen from the hatchway.	Low
Cat Chalets	Single storey building (Fig 5). Approximately 27m^2. Shed style roof with a single slope built from plastic sheeting. No roof void present.	No evidence of bats seen.	Negligible
7, 8 & 9 Reception and adoption meet rooms	The reception building is constructed from red brick with a modern conservatory type extension (Building 9) (Fig 6). Machine made clay tiles, with the occasional tile missing, laid on bitumen felt lining in good condition. Gable roof ends are weather boarded. Roof void present (Fig 7).	No evidence of bats seen.	Low
11 Cattery	Single storey building with pitched roof with corrugated plastic sheeting (Fig 8). Approximately 50m^2. A small roof void is present above the cat accommodation for wiring and lighting causing this area to be warm.	No evidence of bats seen.	Negligible
16 Staff Room	Single storey building approximately 50m^2 previously used as a bed sit and now in use as a staff room. Adjoining a staff cottage. Roofed in ridged modern tiles laid onto bitumen felt. Roof void present separate from the adjoining staff cottage. Fascia boarding is present around the gable end but this is close fitting	No evidence of bats seen.	Low



Fig 1. Stables to be demolished.



Fig 2. Three wooden sheds to be demolished.



Fig 3. Managers House (left) to be demolished and reception building (right) to be modified.



Fig 4. Roof void of the Managers House.



Fig 5. Cat chalets to be modified.



Fig 6. Reception building and conservatory extension to be modified.



Fig 7. Roof void of the reception building.



Fig 8. Cattery (left) to be modified.



Fig 9. Staff room (right) to be modified and staff cottage (left) with no alterations.



Fig 10. Roof void of the staff room with adjoining wall to the roof void of the staff cottage.



Fig 11. Hedgerow to be lost as part of the proposals.



Fig 12. Section of hedgerow to be lost as part of the creation of a new site entrance.

7. Conclusions and Discussion

7.1. The findings of the PRA survey indicates roosting bats are unlikely to be present in any of the structures surveyed, though this cannot be completely discounted as bats are highly mobile animals moving through multiple roost locations, with some species capable of roosting in very small cavities such as under lifted or missing roof tiles.

7.2. Most buildings have a negligible suitability to support roosting bats and three buildings – the Managers House, the staff room and the reception building – have a low suitability to support bats. No evidence was seen inside these roof voids to suggest roosting bats had been or were present. Occasional slipped or missing roof tiles on the Managers House and the reception building do provide suitable roosting opportunities. As the suitability has been assessed as low, further surveys at this time are unlikely to be required. Recommendations are made to further reduce the likelihood of the proposals from impacting on bats through disturbance and harm and for a late discovery protocol.

7.3. The hedgerows and trees on site are likely to be used by wild nesting birds, particularly during the main breeding season of March to August.

7.4. There are no designated statutory or non-statutory sites on or adjacent to the site and no impacts on protected sites is anticipated. The site is surrounded by parcels of land identified by HERC to be an important part of the local ecological network. No direct impacts on these are anticipated, however any additional artificial lighting may directly impact wildlife using these networks and therefore recommendations are made to avoid this.

7.5. There are a small number of historical protected species records including Schedule 1 bird species under the Wildlife and Countryside Act 1981 (as amended) and bat in the local area though the majority of records were for vague or very vague sites. It is unlikely that these records are within the immediate area of the site. The buildings are unlikely to support a nesting Schedule 1 species of bird (e.g. red kite or barn owl *Tyto alba*), though use by other species of wild nesting bird (e.g. wren *Troglodytes troglodytes*, and pigeons *Columba palumbus*) cannot be discounted. Recommendations are made to reduce the likelihood of impacting on wild nesting birds.

8. Recommendations

8.1. The demolition of the Managers House and works to the roofs of the staff room and reception building are to be timed to take place during the spring (mid March to end April) and/or autumn (September to October) when bats are most active but least likely to be pregnant, rearing young or hibernating.

8.2. Roof tiles surrounding missing or slipped roof tiles on the Managers House and reception building are to be removed carefully by hand and checked for roosting bats underneath.

8.3. Where bats are discovered on site all works in that building must cease and further advice sought from an experienced bat ecologist who will undertake a review of the impacts and provide further advice which may include the need to secure a Natural England Protected Species License increasing the project costs and adding delays.

8.4. A check of the working areas is to be carried out daily where works to any of the buildings and hedgerows is undertaken during the nesting bird season (March to August). Any active nests are to be retained until the young have fledged and are fully independent. Regular clearance of materials from site is advised to prevent the creation of habitat suitable for nesting birds and other wildlife (e.g. reptiles). Works to cut and remove vegetation from site is to be timed to take place September to February where possible.

8.5. The oak, whitebeam and cherry trees are to be retained and protected with adequate root protection zones applied. An experienced aboriculturalist will be able to advise further on this. Where these trees cannot be retained, a Potential Roost Feature (PRF) survey for bats will be required which may require a bat licensed tree climber to further investigate any identified PRFs for suitability to support roosting bats.

8.6. Any planting scheme must utilise native locally sourced species, including trees, shrubs and ground flora. Cultivated varieties are to be avoided. The use of flowering lawns and grass seed mixes with higher floristic diversity are advised to provide net biodiversity gains. Opportunities to create green roofs and green walls should be considered. The new planting of hedgerows on site is to be carried out where possible to replace the sections lost as part of the proposals.

8.7. Integrated bird and bat boxes are to be included within the new scheme to provide nesting and bat roosting habitat in the long term. Artificial lighting must be directed away from these boxes to maximise the likelihood of take up. Artificial lighting is to also be directed away from surrounding land parcels identified by HERC to be important for ecological networks locally and retained hedgerows and trees on site.

9. References and Further Reading

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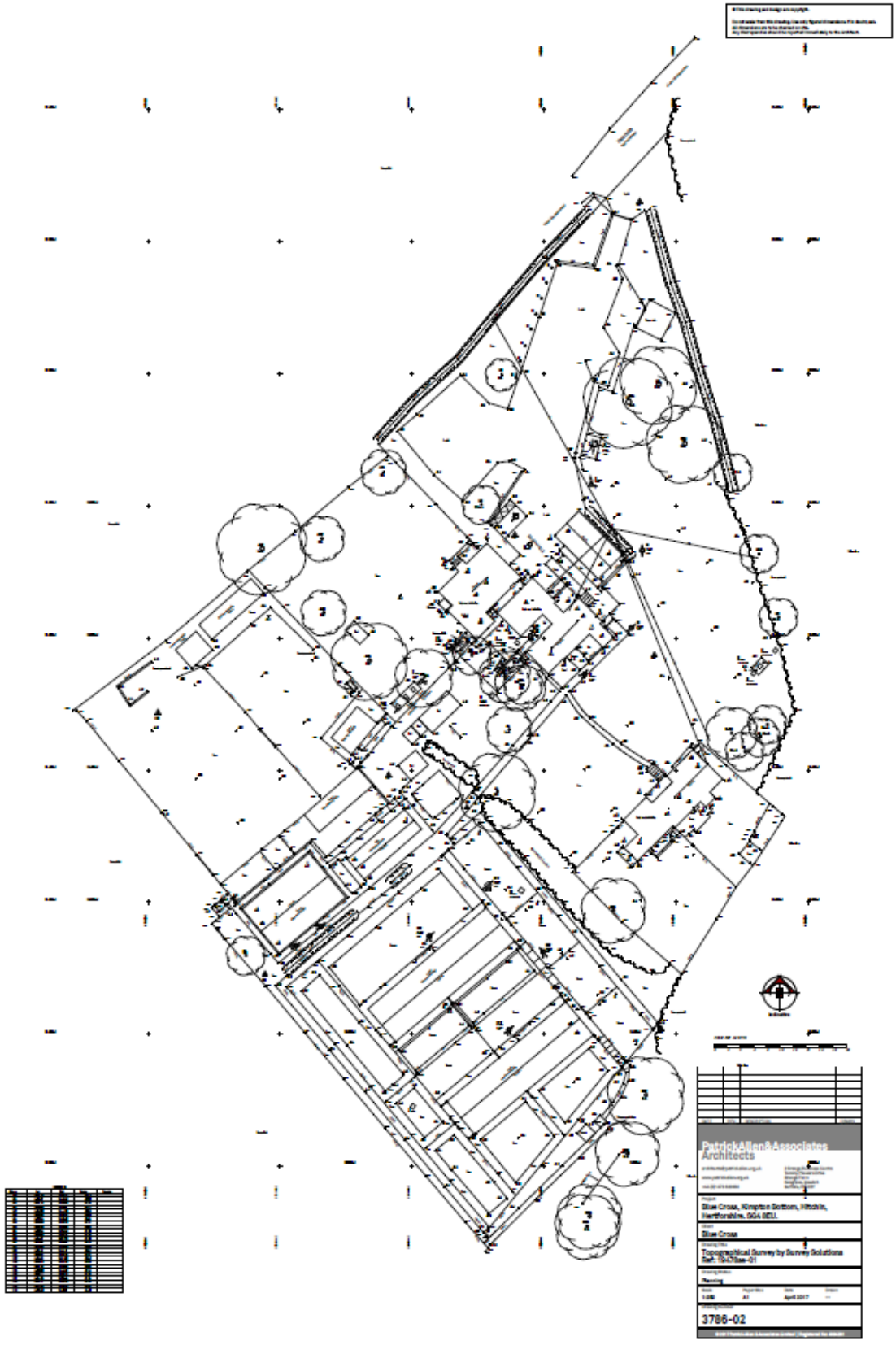
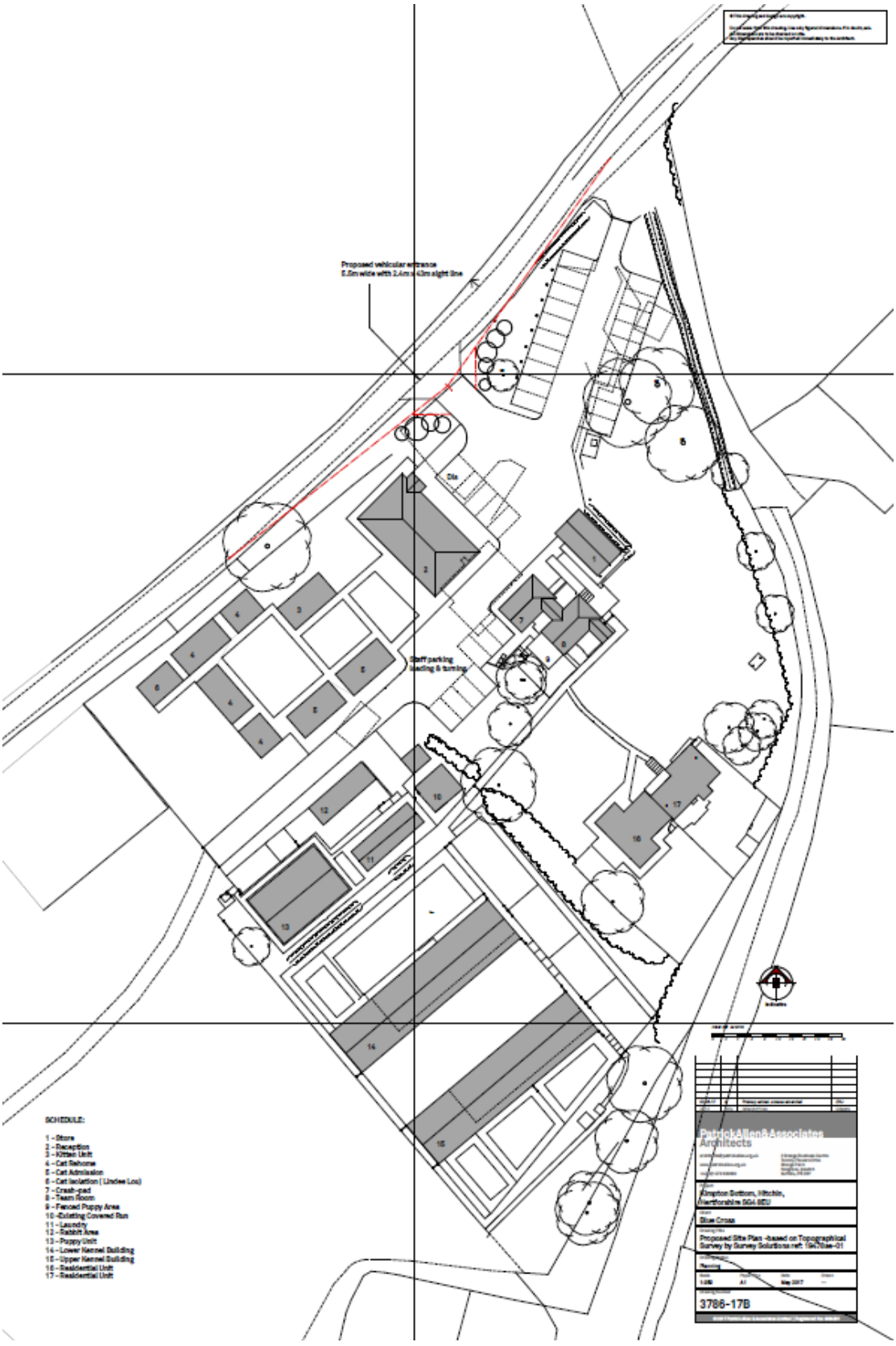
Appendix 1. Topographical survey plan.



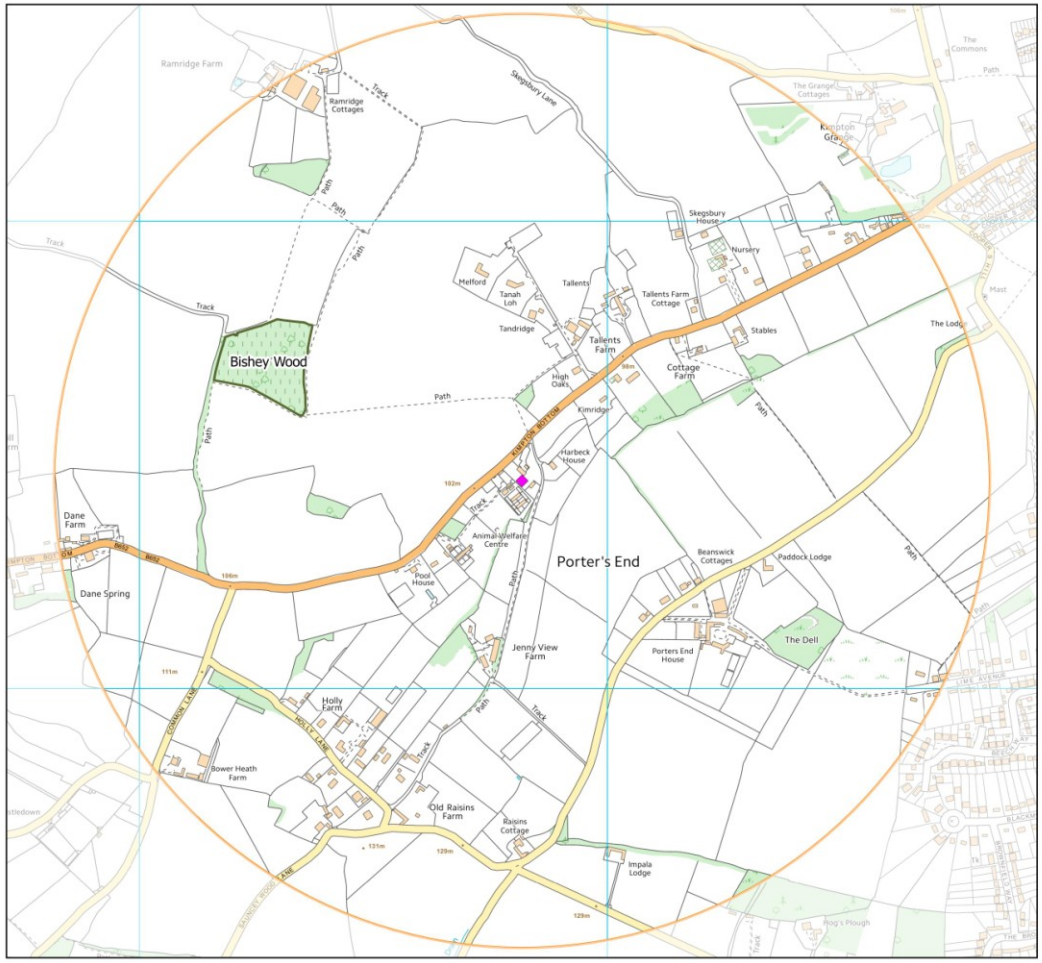
Appendix 2. Existing and proposed layout plan.



Appendix 3. Site proposals summary.



Appendix 4. Data search results.



National Sites Map 1

Search Information
- Search area
- Search point

National Sites
- Ancient Woodland Inventory

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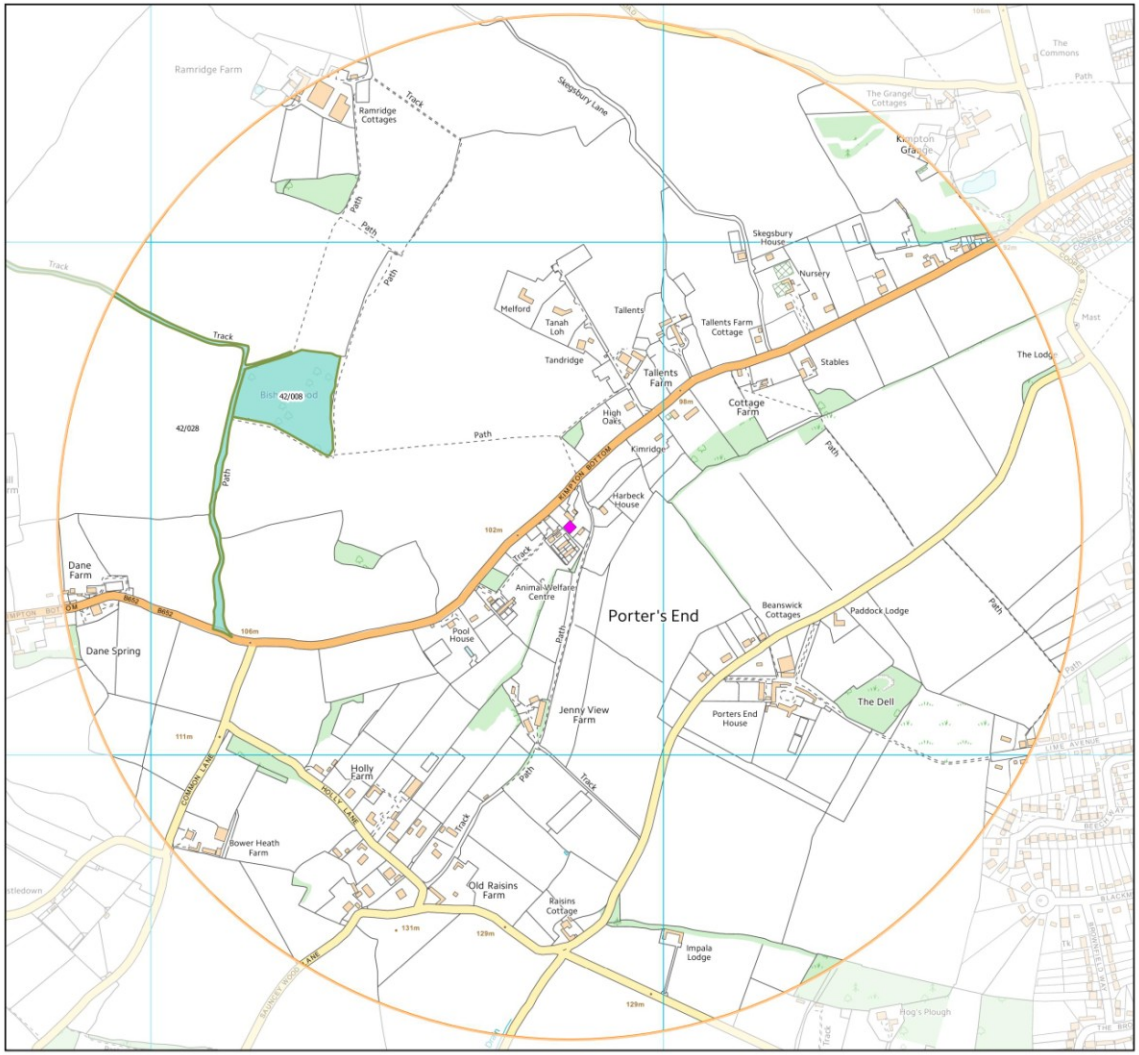

Local Sites Map 1

Search Information
- Search area
- Search point

Local Sites
- Local Wildlife Sites

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HERC
Herts Environmental Records Centre

17/08/2017

HERC Herts Environmental Records Centre

Hertfordshire Ecological Network Mapping

Introduction

A project was carried out in 2011-2013 producing a new Hertfordshire habitat inventory with latest available data and then using these data to generate potential habitat network maps. Potential habitat network maps identify how our habitats are spatially related to each other and where the highest priorities are for expanding them and linking them together. This strategic approach ensures that efforts can be targeted to where they are of most potential benefit. It also ensures that the right combination of habitats are created in the right places, reflecting the historical context and physical factors and minimising unintended consequences of locking out the potential to restore functioning networks of one habitat for the sake of another.

The Hertfordshire Ecological Network mapping project was managed by a steering group that included representatives of the County Council and DEFRA bodies and the guidance document (below) has been approved by the Hertfordshire Local Nature Partnership Planning Task Group that includes representatives from Herts Ecology, the County Council, District Councils and landowners.

For more detail on the project, please visit http://bit.ly/1cfGZDG

How to interpret the maps

The guidance below is based on an advisory document, produced by the Hertfordshire Local Nature Partnership Planning Task Group, which is available here: http://bit.ly/1J1NUgw

The guidance below is based around identifying appropriate actions and principles to apply to the different areas on the map. For any development proposal the first stage is to identify how the different features within the dataset are distributed across the proposed development area. This will involve viewing the map component of the dataset and interrogating the associated data table for each of the map features within and around the proposed site. For ease of use, the map component of the dataset is colour-coded by the overarching categories in the first column of the data table.

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Green areas on the map (values of 1 in the first column of the data table)

- These patches contain habitats listed within S41 of the NERC Act and should be avoided by development and protected by the development management system.
- Adjacent or surrounding development should provide for the enhancement of these habitats through ongoing positive conservation management. The data table identifies the habitat type that must be maintained.
- Development causing significant harm to these patches should normally be refused. Where there is unavoidable harm in the context of overriding public interest, the mitigation hierarchy should be applied. Depending on the circumstances, all other areas on the map could potentially be candidate areas for applying appropriate compensation measures. The same actions described for restoring and creating habitats to enhance ecological networks equally apply to compensation measures. NB a simple 1:1 ratio of compensation for habitat area damaged is unlikely to be enough due to the poor success rate and risks involved in creating new habitats to the same standard as those lost. In reality the ratio is likely to be much higher, in some cases up to a 1:10 ratio of harm to compensation area. Other habitat types are considered irreplaceable (eg. ancient woodland) and can never be adequately compensated if lost.

Purple areas on the map (values of 2 in the first column of the data table)

- These patches contain habitats not currently qualifying under S41 of the NERC Act but with high potential to do so. Whilst not receiving the same level of statutory and policy-based protection as the green areas, they should nonetheless be avoided by development and protected by the development management system where reasonable to do so. This is because they are important components of ecological networks and it is much quicker, less risky and more cost-effective to restore these habitats than to create new ones elsewhere.
- Enhancements to the ecological network can be carried out through restoring these habitat patches to the most appropriate S41 NERC Act habitat type. This would be provided through a combination of one-off capital works and ongoing positive conservation management. The data table specifies the target habitat type most appropriate to restore these patches to.

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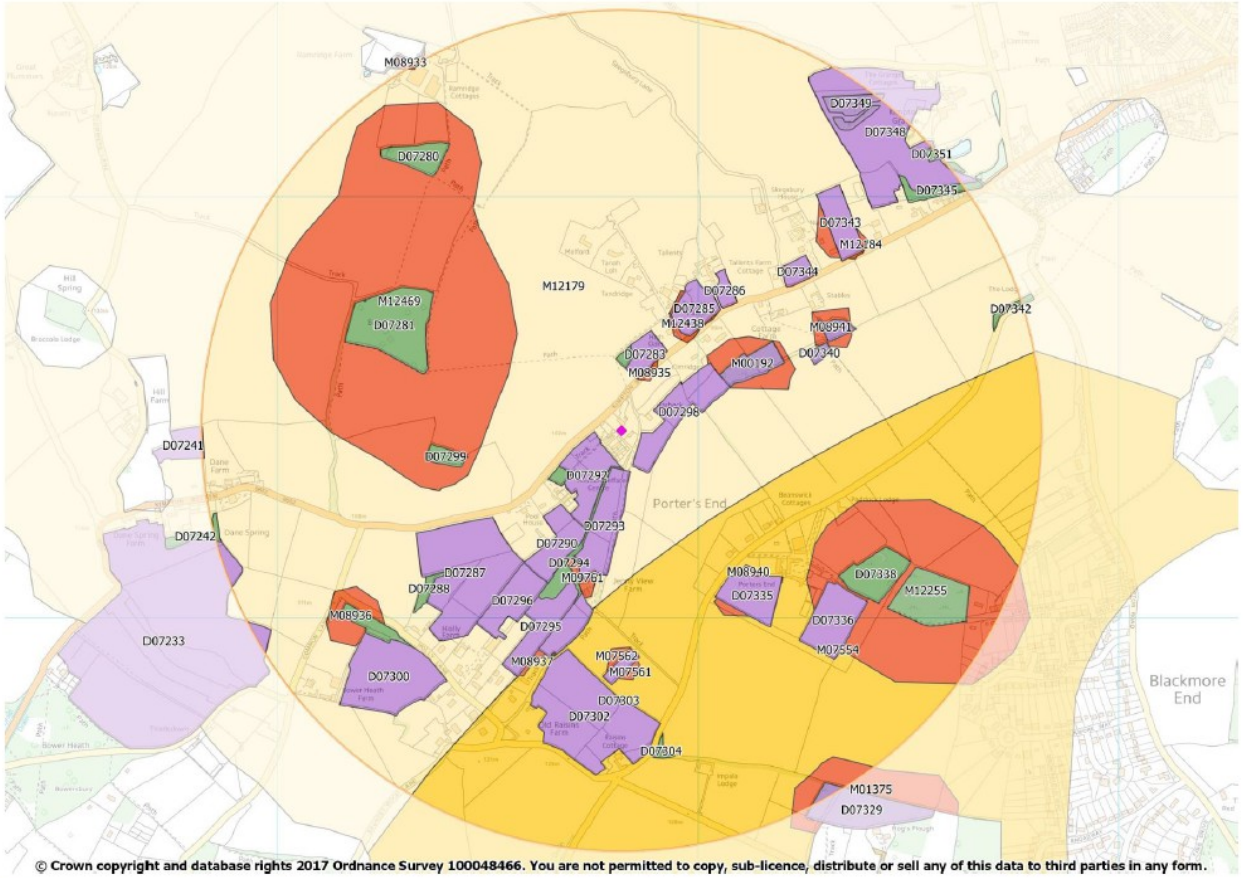
Orange/yellow/cream areas on the map (values of 3a, 3b and 3c in the first column of the data table)

- These patches contain no mapped existing habitats of any significance. Therefore, in the context of the ecological networks dataset, these areas are suitable for appropriate development.
- These areas also form the potential for new habitat corridors to be created to improve ecological network integrity. The dataset identifies the relative priorities for habitat creation to form corridors and other links (eg. habitat 'stepping stones') between existing habitat patches. Orange areas are predicted to be of higher priority than yellow, which are predicted to be of higher priority than cream (values of 3a > 3b > 3c respectively in the first column of the data table). These relative priorities should be taken into account in the design of masterplans, by focusing habitat corridors primarily on the orange areas and then yellow and then cream, as appropriate. Development proposals containing large areas of orange on the map will need to plan the most sensitively and produce the greatest enhancements to the ecological network. The dataset simply predicts relative priority for habitat creation, not necessarily realistic sizes of such projects. Whilst it will normally be unlikely that whole areas coloured in orange on the map would be allocated for creating habitat, it is expected that where orange areas on the map exist, development should aim to provide ecologically functioning corridors from one end of their land to the other.
- There are no hard and fast rules for determining the scale of habitat corridors because it depends on the context and also the scale of development (with larger developments able to contribute the most). However, corridors should be of a scale to allow them to properly function ecologically. For example, a simple Green Infrastructure corridor consisting of a footpath with only a small verge of habitat is unlikely to function ecologically. As a general principle, the wider, larger and more continuous the corridor, the more it will contribute to the integrity of the ecological network.
- Opportunities for habitat creation projects to comprehensively link up existing habitats within and around the development envelope should be designed into the masterplan. This should be done at the earliest possible stage in the process, normally at the same time as other infrastructure, in order to ensure that contributions are both meaningful and cost-effective. If habitat corridors are designed into the masterplan as an afterthought, good opportunities will be missed and habitat creation projects are likely to be less appropriate and less cost-effective. Worst case scenario would be total and permanent severance of a network. It is highly recommended that expert ecological advice is sought in the earliest stages in the design of a masterplan.
- The dataset identifies the most appropriate predicted habitat types to focus on in any given area on the map. Habitat recommendations are found in the Target habitat type column of the table. Where more than one habitat type is recommended, it may be appropriate to focus on just one of

them or to try and combine all habitat recommendations into the habitat corridor being created. It is strongly recommended that expert ecological advice is sought in cases where more than one habitat type is recommended or where a soil test contra-indicates the recommended habitat type.



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Map 1

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