Ecological Assessment

for

Carsons Drive, Great Cornard

January 2010

thelandscapepartnership
landscape architecture urban design environmental planning

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Part 1: Text

1 Introduction

1.1 Site location and context

1.1.1 The Site is located to the southeast of the town of Sudbury in southwestern Suffolk, and immediately to the east of Great Cornard at approximate OS Grid Reference TL 896 403. The Site comprises three arable fields, totalling 12.7ha, of which just under 5ha is proposed for housing development and 7.7ha as open space, including meadowland and woodland as well as some more intensively managed amenity space. The Site location is shown in Figure 01: Location Plan.

1.1.2 The Site is bounded to the west and southwest by the suburban housing of Great Cornard and a wooded strip of land containing mature Oak trees, scrub and tall herb, to the north by a minor road, and to the southeast and east by a small spring-fed stream and associated vegetation. The boundaries to the northeast are poorly defined and comprise open farmland.

1.1.3 The Site slopes slightly to the southeast towards the stream and then rises quite steeply further east and southeast of the Site. The slope above and beyond the Site to the south and southeast is semi-improved pasture, with scattered scrub and areas of developing woodland. Abbas Hall Wood, an Ancient Woodland site, lies approximately 600m to the east. Further to the west of the Site is the valley of the River Stour.

1.1.4 Following an initial appraisal of ecological interest undertaken in early 2006[1], a number of detailed ecological surveys were recommended:

- Resident/breeding bird survey
- Amphibian survey (search of refugia only)
- Water vole survey
- Bat survey
- Badger survey
- Reptile survey
- Hedgerow survey

1.1.5 These were undertaken during 2006 and an initial assessment report completed. However, due to delays in the design and application process, it was considered that species status for some groups may have changed between 2006 and 2009 and consequently, following discussion with Suffolk Wildlife Trust, it was decided to repeat the survey work in respect of

- Amphibian survey (search of refugia only)
- Bat survey
- Badger survey
- Reptile survey

1.2 Objectives

1.2.1 The survey objectives are as follows.

- to determine whether the Site (in whole or in part) is of ecological interest
- to identify areas of ecological value
- to identify any potential ecological constraints to development
- to identify appropriate mitigation

[1] The Landscape Partnership 2006 Carson's Drive, Great Cornard Ecological Survey: Appraisal of ecological interest. February 2006.

2 Survey methodology

2.1 Desktop study

2.1.1 A desktop study was undertaken in early 2006 and was repeated in summer 2009. The purpose of the desktop study was to identify any existing biological data and any wildlife designations relevant to the Site and immediate environs. Natural England's interactive website Nature on the Map was consulted in conjunction with an in-house Geographic Information System (GIS) to determine details of wildlife sites in the vicinity of the Site. Suffolk Biological Records Centre was approached as a source of information, and Margaret Grimwade, the local badger recorder, was contacted in 2006.

2.1.2 A variety of sites are designated in the UK, under various Conventions, Directives and Regulations, for their nature conservation importance and interest. The general aim of these designations is to conserve and protect ecological resources in addition to raising awareness and understanding. Other non-statutory sites are afforded some protection through local plans.

Sites of Special Scientific Interest (SSSIs)

2.1.3 SSSIs are nationally important sites for wildlife, geological and geomorphological features in England. They are designated and protected under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981, as amended. They receive additional protection under the Countryside and Rights of Way Act 2000.

Biodiversity Action Plan (BAP) Priority Habitats

2.1.4 The UK BAP identifies several habitats which are considered biologically important at a national level. They are selected on the following basis: habitats for which the UK has international obligations; habitats at risk; habitats important for assemblages of key species; habitats that are 'functionally critical'. The protection of UK BAP Priority Habitats is implemented through PPS9 and Local Planning Policy.

Hedgerows

2.1.5 Hedgerows are a very significant wildlife habitat over large parts of Britain. They provide essential refuge for a great many woodland and farmland plants and animals. Hedgerows are given protection under The Hedgerows Regulations 1997. As a result, since 1 June 1997, it has been against the law to remove most countryside hedgerows (or parts of them) without first notifying the local planning authority.

Ancient Woodland

2.1.6 Ancient woodlands are woodlands that have been established since or before 1600AD. They are non statutory sites and are not legally protected but they may be afforded some protection in, for example, structure and local plans.

County Wildlife Sites

2.1.7 These non-statutory sites are sites designated by a local authority as being of County nature conservation value but may not be notified as SSSIs. These selected sites are known as wildlife sites (WS), sometimes called SINCs or SNCIs.

2.1.8 The search area for statutory sites of International Importance was within a 4km radius of the Site boundary. The search area for statutory sites of National Importance was within a 2km radius of the Site boundary. The search area for non-statutory sites and wildlife records was within a 1km radius of the Site boundary.

2.2 Phase 1 survey

2.2.1 An extended Phase 1 habitat survey was undertaken on 26th January 2006 over a period of 2 hours and was updated by walkover survey in late July 2009 to take account of seasonal factors and any changes which may have taken place since the first survey visit.

2.2.2 The survey methodology followed the standard Phase I methodology[2] (JNCC, 1993), as updated. Phase 1 survey is a standardised system for surveying, classifying and mapping wildlife habitats including urban areas. The surveyor maps the different habitats present and records information about interesting ecological features related to each area of habitat. The survey visit was also used to identify potential for protected species, for example, bats, mammals, amphibians and reptiles to occur on, or in the vicinity of, the Site.

2.3 Breeding bird survey

Definition of areas likely to support breeding birds

2.3.1 Birds will use a number of different habitats in which to nest, both natural and man-made. Typical sites are predominately grassland and reedbeds, scrub, shrubs and trees and water bodies in virtually any habitat supporting such features. Some species use arable land. Man-made structures include ledges on and within buildings, roof voids, agricultural and commercial buildings, bridges, tunnels, and other suitable constructions.

Background to protection, legal status, etc.

The Birds Directive (1979)

2.3.2 The European Community Council Directive on the Conservation of Wild Birds (79/409/EEC) sets out general rules for the conservation of all naturally occurring wild birds, their nests, eggs and habitats.

Wildlife and Countryside Act 1981

2.3.3 Sections 1 to 8 of the Wildlife and Countryside Act relate to the protection of birds. All birds, their nests and eggs are protected by law and it is thus an offence, with certain exceptions to:

- intentionally kill, injure or take any wild bird
- intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built
- intentionally take or destroy the egg of any wild bird
- have in one's possession or control any wild bird, dead or alive, or any part of a wild bird, which has been taken in contravention of the Act or the Protection of Birds Act 1954
- have in one's possession or control any egg or part of an egg which has been taken in contravention of the Act or the Protection of Birds Act 1954
- use traps or similar items to kill, injure or take wild birds
- have in one's possession or control any bird of a species occurring on Schedule 4 of the Act unless registered, and in most cases ringed, in accordance with the Secretary of State's regulations (see Schedules)

Countryside and Rights of Way Act 2000

2.3.4 This act strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" disturbing any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or recklessly disturbing the dependent young of such a bird.

[2] JNCC (1993), revised 2007. *Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit.* England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

UK Biodiversity Action Plan Priority Species

2.3.5 A number of British Birds are UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced. The protection of UKBAP Priority Species is implemented through PPG9 and Local Planning Policy.

Methodology

2.3.6 The site was visited on three occasions in spring 2006, spread between mid May and late June.

2.3.7 The survey was based on the territory mapping method, a standard technique for breeding bird surveys as used for many years by the British Trust for Ornithology for their Common Birds Census[3].[4] It involves making a series of visits in the breeding season, during which all birds seen or heard in the area are recorded on large-scale maps using standard codes denoting their species and behaviour. At the end of the survey, analysis of the clusters of map registrations for each species enables the number and distribution of territories to be determined.

2.3.8 The accuracy of this method relies on such factors as the experience of the observer of the habitats and species involved, the ability to gain access to all parts of the area, the detectability of species, and the movements of birds in and out of the area depending on time of day or through the season. Inevitably, some birds will be missed, especially of less detectable species and especially nocturnal species, such as Owls but most species using a site should be found. All areas of the site were fully accessible and it is considered that the survey results present a full picture of the bird life using the site during the breeding season.

2.3.9 The whole area was surveyed thoroughly on each visit. Recording extended a little beyond the Site boundary, in order to define territories that straddled the boundary. This 'peripheral zone' varied in width, depending on the adjoining habitats, but was generally about 40m wide. The survey visits were begun in the early morning, a time of intense activity for most birds. Visits were made over a period of 2-2.5hours, starting at around 0800 and finishing by 1030. All visits were made in very good weather conditions, with light winds and no precipitation.

2.3.10 All areas of the site were fully accessible and it is considered that the survey results present an accurate overview of the number of species present and their relative abundance during the breeding period.

2.3.11 Caution was exercised in interpreting the results of the field data, and the numbers of territories estimated should be regarded as minima.

2.4 Badger survey

Definition of areas likely to support Badgers

2.4.1 Badgers are widespread in Britain but are most common in the southwest, and rare in East Anglia.

2.4.2 Badgers are known to inhabit a wide variety of habitats in the UK, ranging from sand dunes in Devon to the Highlands of Scotland and conceivably every habitat in between. However, it is generally accepted that badgers prefer certain habitat characteristics which are derived from the suitability of an area for sett excavation, and availability of food.

2.4.3 An ideal sett is one that is easy to dig, dry, warm, safe for refuge and breeding, and has structural integrity. Over 90% of badger setts are dug into slopes. There are several benefits to having a sett on a slope, including the ease of removing excavated soil. Also, because rock strata are more frequently exposed on slopes this means that there is a greater likelihood of finding a particularly suitable stratum in which to dig. Sloping land is also usually well-drained, and therefore warmer, drier and in colder areas, a depth below ground is quickly attained which

[3] Bibby, C.J., Burgess, N.D & Hill D.A.1992. *Bird Census Techniques.* Academic Press, London.

[4] Gilbert, G., Gibbons, D.W. and Evans, J. 1998. *Bird Monitoring Methods: a manual of techniques for key UK species.* RSPB, Sandy.

is frost proof. Sandy soils are preferred to clays as they have better drainage, although setts are preferentially located where extensive root networks bind the soil so that the roof is less likely to collapse. Very heavy clays are avoided. Chalk and Limestone are also favoured as they give excellent drainage and the setts are protected by slabs of hard rock. These substrates aren't as easy to excavate as sandy soils, although in many limestone areas badgers may exploit the strata of soft material sometimes found below the solid rock.

2.4.4 Food supply is one of the most important factors influencing badger habitat use. The most significant single food item of the badger in much of England is the earthworm, which is often abundant in agricultural grasslands. However, badgers also take a wide assortment of other food items that may be found in a variety of habitat types. Setts are therefore often found in areas that comprise a mixture of woodland, grassland and arable. Copses, scrub and hedgerows bordering fields provide the advantages of both adequate cover and food supply.

Background to protection, legal status, etc.

Protection of Badgers Act 1992

2.4.5 This act consolidated previous badger legislation by providing comprehensive protection for badgers and their setts, with a requirement that any authorised sett disturbance or destruction be carried out under licence.

2.4.6 The Protection of Badgers Act 1992 makes it illegal for any person to kill, injure or take a Badger. It is an offence to cruelly ill-treat a Badger, to dig for or to snare a Badger. Under the 1992 Act it is illegal to damage a Badger sett or cause a dog to enter a sett. It is also an offence to attempt any of these actions or recklessly allow a dog to enter a sett.

2.4.7 A badger sett is defined as: '*any structure or place, which displays signs indicating the current use by, badgers*'. Natural England takes this definition to include seasonally used setts.

2.4.8 Machine digging is not permissible within 20/30m (according to size of machine) of a sett and hand digging is not permissible within 10 metres without a licence. During the months of November – July (inclusive) there exists a closed season where no works in the vicinity of the sett are allowed whatsoever.

Methodology

2.4.9 An initial badger survey was undertaken in March 2006. The methodology used was as follows:

2.4.10 The area of the proposed development and where possible, land in the immediate vicinity, was systematically searched over a period of 3 hours for setts and other signs of Badger activity such as paths, footprints, hairs, latrines and feeding signs following guidelines set out in Harris, Cresswell and Jeffries (1989)[5]. Any sett found was assigned to one of four standard categories as used in both of the National Badger Surveys (main, annexe, subsidiary and outlying) and the number of disused, partially-used and well-used holes at each sett was also recorded. In addition, an assessment was made of the likely value of the habitats within the survey area as foraging habitats for Badgers.

2.4.11 The survey concentrated on the perimeter of site and any habitats or features within the perimeter that were likely to support an existing badger population, such as hedge banks and vegetated areas. Outside the perimeter further surveying of the adjacent habitats was conducted. This included along local footpaths and road verges. A description and the location of any signs of badger activity, and where setts were found, the number of holes present, level of activity, and the subsequent status of the setts (where possible), were made.

[5] Harris S, Cresswell P & Jefferies D. 1989. Surveying Badgers. Occasional Publication of the Mammal Society No 9. Available from the Mammal Society, London.

2.4.12 An update survey was undertaken in August 2009. The area of the proposed development, and where accessible, land in the immediate vicinity was again systematically searched for setts and other signs of badger activity.

2.5 Water Vole survey

2.5.1 Detailed investigation of potential Water Vole habitat in summer 2006 determined that the stream is seasonally dry and is too overgrown with vegetation to support Water Vole. A survey was therefore not undertaken.

2.6 Bat survey

Background to protection, legal status, etc.

The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention

2.6.1 The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention or CMS) was adopted in Bonn, Germany in 1979 and came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix 1 of the Convention), concluding multilateral Agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix 2), and by undertaking co-operative research activities.

2.6.2 The European Community is a party to CMS. In general it undertakes activities under the Convention involving issues where the Community has 'competence' (the authority to act as a Community rather than as the member states individually or collectively as the Union). Thus the Community is a Party to the Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS) as this agreement has significant relevance to fishing activities, over which the Community has authority within the Union.

2.6.3 The UK ratified the Convention in 1985. The legal requirement for the strict protection of Appendix I species is provided by the Wildlife & Countryside Act (1981 and as amended). The UK has currently ratified three legally binding Agreements under the Convention: the Agreement on the Conservation of Populations of European Bats (EUROBATS); the African-Eurasian Migratory Waterbird Agreement (AEWA); and ASCOBANS. An Agreement on the Conservation of Albatrosses and Petrels is currently in the process of being ratified; as of May 2002, eight countries including the UK had so far signed, and the Agreement will enter into force after five countries have ratified. The UK has also ratified the Memorandum of Understanding (MoU) on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia, in respect of the British Indian Ocean Territory.

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) 1979

2.6.4 The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and came into force in 1982. The principal aims of the Convention are to ensure conservation and protection of all wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to afford special protection to the most vulnerable or threatened species (including migratory species) (listed in Appendix 3). To this end the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.

2.6.5 To implement the Bern Convention in Europe, the European Community adopted Council Directive 79/409/EEC on the Conservation of Wild Birds (the EC Birds Directive) in 1979, and Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (the EC Habitats Directive) in 1992. Among other things the Directives provide for the

establishment of a European network of protected areas (Natura 2000), to tackle the continuing losses of European biodiversity on land, at the coast and in the sea to human activities.

The Habitats Directive (1992)

2.6.6 The European Community Council Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) aims to protect the European Union's biodiversity. It requires member states to provide strict protection for specified flora and fauna (i.e. European Protected Species) outside of designated sites.

Habitats Regulations 1994

2.6.7 The Conservation (Natural Habitats &c.) Regulations 1994 formally transpose the requirements of the Habitats Directive into national law. They build on existing nature conservation legislation for the protection of habitats and species by introducing requirements for assessing plans and projects affecting European designations and licensing certain activities affecting European Protected Species. All bats are listed as 'European protected species of animals'.

2.6.8 Licences are required for checking known roosts or for carrying out work that may disturb bats, such as the management or disturbance of features that are known to be used as roosting sites.

Wildlife and Countryside Act 1981

2.6.9 This act provides varying degrees of protection for the listed species of flora and fauna. All UK native species of Bat are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). The legislation protects bats and their roosts under Section 9 of the Act, such that it is an offence to:

- Intentionally kill, injure or take a bat
- Possess, control or sell any live or dead specimen or anything derived from a bat
- Intentionally damage, destroy or obstruct access to any structure or place used for shelter or protection (i.e. a roost) by a bat
- Deliberately, or intentionally disturb a bat while it is occupying a roost

Countryside and Rights of Way Act 2000

2.6.10 This act strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" disturbing bats or recklessly damaging, obstructing or destroying their roosts.

UK Biodiversity Action Plan Priority Species

2.6.11 Several species of bat are UK Priority Species for Conservation under the UK Biodiversity Action Plan and a National Species Action Plan has been produced for these species. The protection of UK BAP Priority Species is implemented through PPG9 and Local Planning Policy.

Tree roosting scoping survey methodology

2.6.12 Roosts may occur in the following features:

- frost cracks
- trunk and branch splits
- woodpecker holes
- rot holes where branches have been removed
- hollow sections of trunk, branches and roots

- beneath loose bark
- cavities beneath old root buttresses and coppice stools
- in dense epicormic growth
- behind dense ivy
- in bat or bird boxes

2.6.13 Veteran trees typically exhibit many of these features and should usually be regarded as sites with clear potential, but any tree which possesses one or more such feature may host bats.

2.6.14 Signs of roosting bats may be indicated by:

- staining around a feature (cavity or split) caused by the natural oils in bat fur
- scratch marks around a feature (cavity or split) caused by bat claws (rarely visible from the ground)
- bat droppings beneath a hole
- urine stains below the entrance or end of split
- audible squeaking from within the feature (cavity or split), especially on hot days or at dusk
- large roosts or regularly used sites may produce an odour; there may be flies around the entrance, attracted by the smell of guano

2.6.15 An assessment of the potential of trees on the site to provide a roost either in the summer (nursery) or winter (hibernation) was undertaken, based on previous experience of bat occupancy at other sites.

2.6.16 All trees were surveyed from the ground with the aid of binoculars looking for features capable of supporting bat roosts (see above), and were placed into one of the following categories:

- **Unknown Potential**. Tree cannot be fully assessed from ground due to size or view obscured by leaves or ivy but is of a size, age and form to warrant further inspection.
- **No Potential**. Tree has no features capable of supporting bat roosts.
- **Low Potential**. One or two minor opportunities offered to individual bats.

Trees with low bat interest are usually young healthy trees without any deadwood, loose bark or woodpecker type holes/damage. Most conifers fall into this category as they are usually planted as a crop and are then felled prior to reaching old age, although once this is attained (90 years +), suitable bat roosts may then develop.

  - Features generally associated with feeding or night-time roosts that could be easily replaced elsewhere.
  - Features such as sparse ivy cover, minor branch splits and small sections of loose or flaking bark.

- **Moderate potential.** Tree has features that may provide a more secure form of roost for small groups of bats and individuals:
  - Trees in this category will have dense ivy, holes, cracks and splits and loose bark suitable for roosting bats but no obvious roost signs such as staining and droppings at entrances.
  - Bats change their tree roosts regularly (sometimes daily): where this happens the roosts of even the larger bats such as Noctule may not show obvious staining.

- **High potential.** Tree has features thought to be capable of supporting bat roosts:
  - features of particular significance, suitable for high priority roosts such as maternity roosts, used by large numbers of bats.

- features such as large cavities, extensive branch or trunk splits, also including multiple features in the same tree that offer a diversity of opportunity.

- **Confirmed Roost:** Evidence found that indicates tree features are being used by bats.
  - Droppings found at the base of the tree or below a cavity.
  - Bats heard 'chattering' inside a feature on a warm day or at dusk.
  - Bat(s) observed flying from a feature.

2.6.17 Trees with **Moderate, High, Unknown** or **Confirmed** potential should be subject to further detailed survey. It is recommended that survey commence with Stage 2 where more than 2 or 3 trees require inspection; otherwise it may be possible to undertake Stage 3 alone if survey can be carried out in the appropriate season.

2.6.18 If it is thought the work will have a direct effect on a bat roost and is unavoidable then advice must be sought from the Species Office for Natural England and a European Protected Species (formerly DEFRA) licence obtained prior to any the work proceeding.

2.6.19 A walk over survey was conducted in July 2006 to identify potential foraging habitat and roosting trees on the Site. All mature trees and other suitable features within the likely area of land-take were carefully scrutinised with binoculars to assess their likely occupancy by roosting or hibernating bats. The survey was updated in October 2009.

2.6.20 An assessment of the potential of trees present on the Site to provide a roost either in the summer (nursery) or winter (hibernation) was made, based on over 25 years previous experience of bat occupancy at other sites in Great Britain and under English Nature Licence No. 2006 0171 (Science and education).

Bat foraging survey

2.6.21 Bats will use a number of different habitats for foraging, however woodland margins, hedgerows and wetland are of particular value. Tree and shrub habitats attract a wide variety of insects which bats prey on and they also utilise trees and hedgerows as navigational landmarks for their nocturnal flight path. The edges of woodland and hedgerows are linear features which create a corridor for bats to commute from one area of countryside to another such as from their roost site to new foraging grounds, and themselves provide sheltered conditions for foraging. Waterways and ponds also attract midges and other flying insects which bats will prey upon.

2.6.22 An initial walkover survey was undertaken in July 2006 and was followed by an activity survey that evening. Potential foraging and/or commuting routes for bats were identified in accordance with guidelines in The Bat Workers Manual[6]

2.6.23 A standard transect (based on the National Bat Monitoring Scheme transect); 'transect A' was marked out in 9 x 100m length sections to incorporate areas identified as important potential bat foraging habitat.

2.6.24 Commencing at sunset the transect was slowly walked for c2mins with the detector set at c25kHz. At the end of each section a static recording point was adopted for 10mins during which the detector was switched to 45 kHz.

2.6.25 The day preceding the survey was hot and humid with occasional heavy rain showers throughout the afternoon and in to the early evening (Max temperature 24^0c) with a south-westerly wind between still and light breeze (1 – 2 Beaufort).

[6] Mitchell-Jones, A J & McLeish, A P., (Edits) (1999). *The Bat Workers' Manual.* JNCC Peterborough. Includes ID and counting of bats in roosts and in flight.

2.6.26 An update activity survey was undertaken in August 2009. Potential foraging and/or commuting routes for bats were again identified in accordance with guidelines in The Bat Workers Manual[7]

2.6.27 A standard transect (based on the National Bat Monitoring Scheme transect); 'transect B' was identified to incorporate areas considered to be potential bat foraging habitat and survey activity proceeded as above, this time using a frequency division Duet heterodyne bat detector with a recording device, together with visual observations on flight patterns and feeding behaviour to aid identification to species.

2.6.28 After completion of the 2009 survey, the digital bat recordings were analysed using data analysis software.

2.7 Reptile survey

Species concerned

2.7.1 In East Anglia: Common Lizard, Slow Worm, Grass Snake and Adder.

Definition of areas likely to contain reptiles

2.7.2 Sites used by reptiles during the summer months include 'wasteland', long grassland, scrub, including gorse and bramble scrub, the base of hedgerows and open (sunny) woodland. Most undisturbed (e.g. not regularly mown or closely grazed) areas of suitable size have the potential to support reptiles.

2.7.3 Possible hibernation sites, or hibernacula, (potentially occupied from late September to early April) include embankments, piles of cut logs or timber, fly-tipped material (including dumped tin sheets, rubble, tyres, turves and mounds of soil), beneath tree roots, in mammal burrows and any other cavities or crevices above the winter water table.

Background to protection, legal status, etc.

Wildlife and Countryside Act 1981

2.7.4 This act provides varying degrees of protection for the listed species of flora and fauna. All UK native reptiles are protected under Schedule 5 (Section 9) of the Wildlife and Countryside Act 1981 (as amended). Common lizard, Slow Worm, Grass snake and Adder receive partial protection under the Act. Only part of sub-section 9(1) and all of sub-section 9(5) apply; these prohibit the intentional killing and injuring and trade (i.e. sale, barter, exchange, transporting for sale and advertising to sell or to buy).

Countryside and Rights of Way Act 2000

2.7.5 This act strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" killing or injuring the above-listed species.

2.7.6 Reptiles have legal protection under the Wildlife and Countryside Act (1981) and Countryside and Rights of Way Act (2000). Adder is a BAP Suffolk Character Species. If reptiles are known or suspected to be present at a site, then all reasonable precautions should be taken to ensure the population is safeguarded.

2.7.7 If reptiles are disturbed in winter (October to March inclusive), at a time when animals will be in hibernation, then they are likely to die. To continue to work in these circumstances would constitute an offence of either 'intentional' or 'reckless' disturbance of a protected species, leading to prosecution under the 1981 Wildlife and Countryside Act and 2000 CRoW Act.

[7] Mitchell-Jones, A J & McLeish, A P., (Edits) (1999). *The Bat Workers' Manual.* JNCC Peterborough. Includes ID and counting of bats in roosts and in flight.

2.7.8 Similarly, if work (at any time of year) is found to result in the killing or injury of reptiles, then to proceed with the action which caused the killing or injury again constitutes an offence. All such work should cease immediately until the situation can be assessed by an Ecologist, and, if necessary, the working method altered.

Methodology

2.7.9 A presence-absence survey was undertaken in respect of reptiles in accordance with guidance in the Herpetofauna Workers Manual[8]. A total of 7 visits were made to the Site, each lasting for 1-1.5 hours, the first visit being used to survey opportunistically, and also to make an assessment, based upon the judgement of the surveyor, of the habitats most likely to be used by reptiles, and the locations of any potential basking places. Artificial refugia (pieces, or 'mats' of heavy roofing felt measuring 100cm by 75cm) were placed around the Site in areas thought to have potential to support reptiles, at a density of 1 mat per 10m of suitable habitat. These were left in situ for a period of at least 1 week before survey visits were commenced.

2.7.10 Visits were carried out either in the early morning (0900-1100) or late afternoon (1600-1800), during suitable weather conditions; avoiding heavy rain, strong wind and temperatures below 10°C or above 18°C. On all visits, the temperature of the mats was checked by hand to ensure that they were warm to the touch, and thus likely to be attractive to basking reptiles. Opportunistic survey of potential basking areas and potential hibernation sites was undertaken concurrently with checks on the placed mats.

2.7.11 All refugia were checked on six separate occasions for reptiles during the period mid May-mid June and during September and early October 2006 and opportunistic survey for animals basking away from refugia was also carried out. Survey was not undertaken in July and August due to a prolonged spell of warm weather. On all visits, the temperature of the mats was checked by hand to ensure that they were warm to the touch, and thus likely to be attractive to basking reptiles.

2.7.12 A repeat survey was undertaken in late August and September 2009, again avoiding the hotter parts of the day. Six survey visits were made.

2.8 Great Crested Newt survey

2.8.1 A presence-absence survey was undertaken in respect of Great Crested Newt. Due to access constraints described below, standard survey techniques were not employed. Survey effort was limited to a check of potential refugia and also of the artificial refugia placed on Site for reptile survey during 2006 and 2009.

2.9 Hedge survey

Definition of hedges requiring survey

2.9.1 All hedges on the Survey Site which are not garden hedgerows (not obviously bounding private property, and containing a high proportion of non-native species) are surveyed. A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less that 20m wide[9]. Any bank, wall, ditch or tree within 2m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2m of the centre of the hedgerow. All hedgerows consisting predominantly (i.e. 80% or more cover) of at least one woody UK native species are covered by this priority habitat, where each UK country can define the list of woody species native to their respective country. Climbers such as honeysuckle and bramble are recognised as integral to many hedgerows, however they require other woody plants to be present to form a distinct woody boundary feature, as such they are not included in the

[8] Gent A & Gibson S (Edits). 1998. *Herpetofauna Workers Manual.* JNCC, Peterborough.

[9] Bickmore C J (2002). Hedgerow Survey Handbook: A Standard Procedure for Local Surveys in the UK. Prepared on behalf of DEFRA, London (Steering Group for the UK Biodiversity Action Plan for Ancient and / or Species-rich Hedgerows).

definition of woody species. The definition is limited to boundary lines of trees or shrubs, and excludes banks or walls without woody shrubs on top of them.

Background to protection, legal status, etc.

Hedgerows Regulations 1997

2.9.2 These regulations aim to protect important hedgerows in the countryside. They make it illegal to remove most countryside hedges without first notifying the local planning authority and provide protection for 'important hedgerows'.

UK Biodiversity Action Plan Priority Habitat

2.9.3 All UK hedgerows excepting garden hedges are UK Priority Habitat for Conservation under the UK Biodiversity Action Plan. The protection of UKBAP Priority Habitats is implemented through PPG9 and Local Planning Policy.

Methodology

2.9.4 The status of each hedge with regard to the Hedgerows Regulations (1997) was assessed by survey of 30m sections according to standard procedure[10] in early summer 2006. Species richness, hedge status and condition were assessed.

2.10 Rare plant survey

Background to protection, legal status, etc.

Wildlife and Countryside Act 1981

2.10.1 The Wildlife and Countryside Act (as amended) provides protection to a number of species of plant as listed in Schedule 8. Section 13 identifies measures for the protection of wild plants. It prohibits the unauthorised intentional uprooting of any wild plant species and forbids any picking, uprooting or destruction of plants listed on Schedule 8. It also prohibits the sale, etc, or possession for the purpose of sale of any plants on Schedule 8 or parts or derivatives of Schedule 8 plants. It provides certain defences, e.g. provision to cover incidental actions that are an unavoidable result of an otherwise lawful activity.

UK Biodiversity Action Plan Priority Species

2.10.2 Several species of plant found in the area are UK Priority Species for Conservation under the UK Biodiversity Action Plan, for which National Species Action Plans have been produced.

Methodology

2.10.3 Rare plant survey was undertaken opportunistically on three occasions during the period mid May to late June. Survey focussed upon the location and identification of rare arable weeds. Survey effort was therefore centred upon the arable field margins, although checks were also carried out on existing semi-natural vegetation.

2.11 Limitations to survey

2.11.1 The first Phase 1 survey was undertaken in mid winter, at a time when much of the floristic and faunal interest would not be wholly evident, however the 2009 update compensates for any inadequacy in the earlier survey data.

2.11.2 It was not possible to gain access to waterbodies to the east of the Site (above 250m distant from the Site boundary) in order to carry out Great Crested Newt survey to the approved methods as these ponds lie within a separate ownership. Survey was therefore limited to a

[10] Bickmore C J (2002). Hedgerow Survey Handbook: A Standard Procedure for Local Surveys in the UK. Prepared on behalf of DEFRA, London (Steering Group for the UK Biodiversity Action Plan for Ancient and / or Species-rich Hedgerows).

check of potential refugia and the artificial refugia placed on Site for reptile survey, however, given the distance of the waterbodies from the Site and the inhospitable nature of the Site, which is largely arable land, this was considered to adequately address any potential uncertainty as to the possible presence of this species.

2.11.3 The timing of the bat survey is considered optimal, as any maternity roosts located in adjacent housing and on Site trees would have been active during the 2006 survey. The 2009 survey updates this information.

2.12 Assessment methodology

2.12.1 The assessment method for determining ecological value is that published in the Handbook of Biodiversity Methods (CUP, 2005) and, along with the 3-stage assessment, is also that used in major scheme assessments (TAG, GOMMMS, DMRB etc)[11]. The assessment process takes into account he legal/protected status of species and habitats at the national and local/county level (see below).

2.12.2 The three-stage assessment process allows the value of the ecological receptor and the magnitude of the impact to be cross-tabulated to identify impact significance. The details are set out in Tables 1.1-1.3 in Appendix 7.

2.12.3 The assessment of the potential impacts of the application will take into account both on-site impacts and those that may occur to adjacent and more distant ecological features. Impacts can be positive or negative. Negative impacts can include:

- direct loss of wildlife habitats;
- fragmentation and isolation of habitats;
- disturbance to species from noise, light or other visual stimuli;
- changes to key habitat features; and
- changes to the local hydrology, water quality and/or air quality.

2.12.4 Negative and positive impacts on nature conservation features are characterised based on predicted changes as a result of the proposed development. In order to characterise the impacts on each feature, the following parameters are considered:

- the magnitude of the impact;
- the spatial extent over which the impact would occur;
- the temporal duration of the impact;
- whether the impact is reversible and over what timeframe; and
- the timing and frequency of the impact.

[11] Hill, D, Fasham M, Tucker G, Shewry M, Shaw P (eds) 2005 *Handbook of Biodiversity Methods*: Survey, Evaluation and Monitoring. Cambridge University Press

3 Results

3.1 Desktop survey

Sites of International Importance

3.1.1 There are no sites of International importance within 4km of the Site.

Sites of National Importance

3.1.2 There is one Site of Special Scientific Interest within 2km of the Site: Cornard Mere SSSI lies approximately 1.5km to the south (Figure 02). This is a small wetland site, comprising a mosaic of open water, fen and wet scrub. The citation for this site is found in Appendix 1.

3.1.3 Three Biodiversity Action Plan Priority Habitat categories occur within 2km of the Site: wet woodland, reedbed and floodplain grazing marsh.

Sites of Regional and Local Importance

3.1.4 Abbas Hall Wood County Wildlife Site (CWS) lies to the east, within 400m of the south-eastern corner of the Site. The citation for this site is found in Appendix 1. This woodland is an Ancient Woodland, dominated by species including oak, ash, field maple, hazel and small-leaved lime.

Records of Notable species

3.1.5 A number of records for rare or notable species have been highlighted by Suffolk Biological Records Centre (SBRC) as occurring within 1km of the Site. Appendix 3 shows these records.

Amphibians

3.1.6 Great Crested Newt and Common Toad have been recorded within the search area. If there is suitable habitat on Site to support these species, then they may be present. These species are associated with waterbodies which are required for breeding and grassland/scrub for foraging.

Reptiles

3.1.7 Common Lizard, Grass Snake and Slow Worm have been recorded within the vicinity of the Site. Where suitable habitat exists on Site, these species may be present.

Birds

3.1.8 Bird species including Black Tern, Kingfisher, Spotted Flycatcher and Reed Bunting have been recorded from the search area. It is not known whether or not these are breeding records. These species along with others may be present on Site if suitable habitat exists.

Mammals

3.1.9 Water Vole, Water Shrew, Hedgehog, Harvest Mouse and Badger, as well as bat species including Pipistrelle and Serotine, have been recorded within 1km of the Site. If suitable habitats or features are present within the Site then some of these species may occur.

Invertebrates

3.1.10 Lunar Yellow Underwing and Shaded Fan-Foot moths have recorded within the search area. If habitat suitable to support these species is present within the Site, these species may occur.

Plants

3.1.11 A number of uncommon plants have been recorded in the vicinity of the Site. Species include Good King Henry, Black Poplar, Dwarf Spurge, Shepherd's Needle, Corn Marigold, Rough Hawksbeard, Lesser Calamint and others. If conditions are suitable some of these species may occur on Site.

3.1.12 Margaret Grimwade of the Suffolk Badger Group was consulted in 2006 and was able to provide one record for Badger within, or close to the Site boundary, along the Cornard Tye road to the north of the Site (not mapped).

3.2 Phase I survey

3.2.1 The results of the Phase 1 ecological survey are reproduced in Figure 03: Results of Phase 1 habitat survey (see also Appendix 2: Target Notes).

3.2.2 Eleven phase 1 habitat categories were identified on, or bordering the Site during the initial on-site survey. Those marked * occur within (or on) the Site boundaries:

- Semi-improved neutral grassland*
- Species rich hedge
- Species poor hedge*
- Species poor hedge with trees*
- Dense scrub*
- Scattered scrub*
- Tall ruderal*
- Dry ditch*
- Running water*
- Cultivated land (arable)*
- Orchard

3.2.3 Semi-improved neutral grassland forms a large part of the established vegetation on the slopes east and south of the Site. There is also a small proportion of this habitat on the Site itself. It is possible that reptiles may use this habitat. The hedgerow along Cornard Tye Road, to the north of the Site is considered to be species rich. Species poor hedges were noted as occurring on some of the Site boundaries and species poor hedges with trees occur along a track in the western part of the Site. Woody vegetation provides opportunities for nesting birds and mature trees may provide habitat for roosting bats. Hedgerow networks act as wildlife corridors, providing corridors of safe movement for wildlife across the Site. Areas of dense and scattered scrub occurring on and adjacent to the Site may offer habitat for nesting birds. Tall ruderal vegetation associated with the stream corridor and western boundary of the Site may support reptiles.

3.2.4 A dry ditch runs approximately east-west across the Site and a minor watercourse runs north-south through the Site. This habitat may support species such as Water Vole and Grass Snake.

3.2.5 Much of the Site is under arable cultivation. The fields may be used by a number of bird species, including Skylark.

3.3 Breeding Bird survey

3.3.1 In total 22 species were recorded in the survey area. Of these 20 were considered to be holding territory within or partly within the survey area in 2006. Most of the birds present were associated with the hedges and field banks forming the Site boundaries and with adjacent gardens to the southwest. The exception to this was Skylark, the most notable species recorded, with an estimated 12 pairs present, which was exclusively associated with the arable fields. The population of Skylarks was higher than would normally be expected on a land holding of this size because of the favourable conditions offered by the set-a-side field; over half of the territories recorded were concentrated on this one set-a-side field. Also notable

were Green Woodpecker, Song Thrush, Whitethroat, House Sparrow and Linnet. These species used the Site boundaries for nesting/breeding and the arable areas and grassy track margins for foraging in varying degrees. House Martins were seen feeding over the wheat fields. While their nests were certainly outside the survey area the feeding opportunities provided by the Site might be important to breeding success.

3.3.2 The arable fields, which comprise most of the survey area, supported generally small numbers and a limited variety of breeding birds, although there was a strong population of Skylarks. The highest densities of breeding birds occurred around the edge of the survey Site and were mainly associated with the houses and gardens adjacent to the survey area.

3.3.3 Figure 04 illustrates the results of the survey for key bird species. Further detail can be found at Appendix 04.

3.4 Badger survey

Results of 2006 survey

3.4.1 The northern boundary of the Site is formed by a minor road which has steep scrub covered banks especially to the north, and at TL 89686 40590 – TL 89695 40598 is a c9-hole main sett (sett 1) with c6 active holes and three well used (fresh) dung pits. The setts are excavated into yellow sand making the spoil heaps very noticeable with one hole exiting just above the roadway (Figure 06).

3.4.2 Well marked pathways in the adjacent permanent pasture and along the bank itself connect sett 1 to a 3-hole subsidiary sett (sett 2) approximately 60m to the east. Two up-and-overs were found adjacent to sett 1 where the Badgers cross the road directly onto the proposed development Site.

3.4.3 At approximately 300m further along Canham's Road to the northeast lies sett 3, a 3-hole outlier, and at the most northerly extent of the Site there is a distinct Badger pathway crossing on to the proposed area of development.

3.4.4 To the northwest of the Site is an orchard which is bounded by rabbit fencing which is relatively intact along its southwestern boundary, outside of which is a Badger pathway. At its most southerly point there is a break with claw marks and mud on the wire, possibly indicating Badger ingress.

3.4.5 A steep sided ditch travels southwards from this point which has signs of Badger passage on both banks (pathways, footprints and dung pits) and adjacent to the culvert headwall is a crossing point with claw marks and footprints.

3.4.6 At the junction with the track to Abbas Hall, under the scrub and tree canopy were a collection of 5 freshly used dung pits (TL 89860 40387) with Badger pathways on both sides of the ditch and following the ditch southwards.

3.4.7 At the southernmost extent of the Site, a small plank bridge acts as a ditch crossing, with distinct claw marks in the opposite bank, along with snuffle holes. Adjacent to the remains of Kiln Farm are numerous Badger pathways through the snowdrops under the scrubby woodland canopy, the Badger pathways leave the Site to enter the semi-improved grassland to the southwest where 4/5 dung pits are located. A possible summer lie-up site occurs under the collapsed timber wall of the old farm building.

3.4.8 Distinct Badger pathways could be noticed around the northern boundary of the rectangular semi-improved grassland but became harder to discern within the wooded strip adjacent to the housing estate where children play. At TL 89564 40211 was a c200mm diameter concrete drainage pipe in the bank which when checked with a torch was found to contain dry leaves. It is considered that this could be used as either a summer lie-up or bolt hole if animals are disturbed. No further signs were noted due mainly to human activities and dog walking.

Results of 2009 survey

3.4.9 The main Badger sett was revisited on the far side of a minor road bounding the northern perimeter of the Site. The sett is situated on a south facing embankment with 12 holes extending approximately 95m across the bank. The habitat is characterised with mature scrub including Blackthorn *Prunus spinosa*, Dog Rose *Rosa Canina*, Elder *Sambucus nigra*, Field Maple *Acer campestre*, and Hazel *Corylus avellana*.

3.4.10 The entrance holes of the main sett are well connected by a series of worn pathways running adjacent to the road through the bank side vegetation. Six of the 12 holes were thought to be active during the time of survey with signs of recent excavation (yellow sand substrate) and bedding / hairs within the corresponding spoil heaps. The remaining holes contained debris and cobwebs across the entrances indicating a lack of recent activity. Hairs were found within these spoil heaps although the lack of tensile strength indicated these were of an older age.

3.4.11 The furthest hole on the eastern side of the sett was approximately 20m from the next entrance hole (the furthest relative distance between holes) and showed signs of Fox *Vulpes vulpes* activity. Fox prints were found across the spoil heap although the absence of a strong musty odour around the entrance indicated that it was either not in current occupation or had only been occupied as an earth for a short period of time.

3.4.12 A single hole located on top of the bank on the northeastern corner of the sett was found to have a latrine within close proximity to the entrance. The dung was relatively fresh and was deposited directly onto the ground rather than being dug into a latrine pit. The entrance also featured flies which indicated the hole was occupied at the time of survey (flies are attracted to the presence of badgers but remain around the entrance as are unwilling to fly into the cooler dark conditions of the sett).

3.4.13 Pathways leading away from the sett indicated regular use northwards (away from Site) through the adjacent rough grassland habitat. Tufts of hair found on a section of barbed wire also indicated badger activity and frequent passage northwards along a nearby boundary running perpendicular to the bank. Pathways were also noted leading southwards across the road, with two up-and-overs discovered on the opposite bank (within the Site boundary) although the encroachment of ground vegetation indicated no recent passage. No further pathways were found to indicate recent activity and passage southwards through the Site.

3.4.14 No further signs of badger activity were noted on Site despite the boundary and Site features (i.e. ditch and network of human pathways) being carefully searched throughout the survey. Further eastwards along the northern embankment (off Site) no signs of recent activity were found around the subsidiary sett identified within the 2006 survey. The corresponding spoil heaps were particularly small and on closer inspection one of the entrances was found to be particularly narrow further down. It was not therefore thought to be in use as a subsidiary sett at present. The results of survey are provided on Figure 06.

3.5 Bat survey

Results of 2006 survey

Dusk activity survey

3.5.1 During the survey at least four species of bat were recorded using the wooded strip, situated to the northeast of the existing development and other habitats in the locality, namely Common Pipistrelle, Noctule, Serotine and an unidentified Myotis bat (possibly Whiskered bat). The presence of Pipistrelle and Serotine bat in the vicinity of the Site was also identified in the desktop survey. The details of the Site survey, including results of recordings made during the survey can be seen in Appendix 5 and Figure 05a.

Potential tree roosts

3.5.2 None of the trees on the site/site boundaries were considered to have above Low potential for roosting bats.

Pipistrelle

3.5.3 The Common Pipistrelle bats were mainly recorded from a north-westerly direction; this indicates the presence of a maternity roost located in the housing estate centred on Walsingham and De Grays Close. Here the building construction contained mainly soffit/bargeboard detailing around the eaves: a common roost site for this species of bat. whereas the south-eastern part of the estate had mainly mortared verges which does not present roosting opportunities.

Noctule

3.5.4 The Noctule is a tree dwelling species. Several trees with roosting potential were recorded during the initial walk over survey, although this species will fly over 6km or more from the roost to a suitable foraging site.

3.5.5 It is considered that due to the faintness of the registration, the Noctule was approximately 200-300m away from the observer at the time of recording, and the time of its occurrence (i.e. c24mins past sunset) would indicate that it may not have originated from a tree on the Site. The river valley of the Stour is approximately 1.3km to the west, and the Noctule could have been commuting over the Site from, or towards, the river floodplain.

3.5.6 Several areas of permanent pasture were recorded during the initial walk over survey. These areas and the ancient woodland would provide ideal habitats for foraging. A seasonal food source exploited particularly by Noctule bats is the Garden Chafer, a beetle which is commonly found in abundance on the dry sandy soils such as those found at Great Cornard. Whilst the chafer was not recorded on Site this may have been due to survey timing.

Serotine

3.5.7 The Serotine, along with the Noctule is one of the larger bat species but nevertheless it is found beneath roofing tiles of houses built c100years ago. Its habitats are associated with the urban edge i.e. pastures with mature hedges and trees and white street lighting.

Whiskered bat

3.5.8 Whiskered bats are often associated with woodland edge and mature hedgerows, roosting in trees and the ridges of older houses.

Results of 2009 survey

Dusk activity survey

3.5.9 Common and Soprano Pipistrelles and unidentified Myotis spp. were recorded along the northern, northeastern, and southern boundaries of the Site during the survey. No bats were recorded on the wooded habitat along the western perimeter or along the open section of ditch on the southeastern side of the Site. The details of the Site survey, including results of recordings made during the survey can be seen in Appendix 5 and Figure 05b.

Pipistrelle

3.5.10 Common and Soprano Pipistrelles were recorded early in the survey (38mins – 42mins after sunset) with bats seen flying over / along the southern boundary of the Site and feeding within the adjacent field. Activity was also noted on the eastern side of the Site with a Common Pipistrelle encircling a large Willow *Salix* spp. tree whilst feeding above the corner of the ditch. Both Pipistrelle species were later heard feeding along the northern boundary up until the end of the survey, although few bats were seen at this point of the survey due to fading light conditions.

Myotis spp.

3.5.11 An unidentified Myotis spp. was heard during the mid stages of the survey (39mins after sunset) at stopping point 3 along the southern boundary. Two further passes were later recorded on the northern boundary with a bat seen flying east then west along the tree line approximately 10ft above ground level. It was not possible to identify with any confidence the species of Myotis bat as the call was brief and the fading light conditions made the visual characteristics (i.e. size, shape, and flight patterns) difficult to ascertain.

Potential tree roosts

3.5.12 Nine trees were assessed for their potential to support bats. The trees are described below

A Mature multi-stemmed Ash tree with woodpecker holes and a few cracks/splits. Considered to have **Low potential**

B Mature Oak tree with thin Ivy cladding and some dead/decaying limbs. Considered to have **Low to Moderate potential**

C Mature Oak tree in poor condition with some dead limbs. Considered to have **Low to Moderate potential**

D Mature Oak tree with split trunk but otherwise in good condition. Considered to have **Low-Moderate** potential

E Mature Field Maple tree with sparse Ivy covering and small branches in good condition. Considered to have **Low potential**

F Mature Oak tree with partial Ivy covering. Some of the smaller branches were broken. Considered to have **Low potential**

G Mature Oak tree with little Ivy covering and no cracks or broken limbs. Considered to have **Low potential**

H Mature multi-stemmed Oak tree with little Ivy covering and no cracks or broken limbs. Considered to have **Low potential**

I Mature Oak tree in poor condition. Some Ivy covering on trunk but very few branches. Considered to have **Low potential**

J Mature Oak tree in good condition with no Ivy, cracks or splits. Considered to have **Low potential**

K Mature Oak tree previously pollarded and Ivy clad. Considered to have **Moderate potential**

L Mature Oak tree in good condition with no Ivy, cracks or splits. Considered to have **Low potential**

M Mature Oak tree with little Ivy covering and in good condition. Considered to have **Low potential**

N Mature Oak tree with no Ivy covering and no significant cracks. Considered to have **Low potential**

O Mature multi-stemmed Oak tree with no cracks or Ivy covering. Considered to have **Low potential**

P Mature multi-stemmed Oak tree with no cracks or Ivy covering. Considered to have **Low potential**

Q Ancient Oak pollard. Some splits/cracks but no dead wood. Considered to have **Moderate potential**

3.6 Reptile survey

Results of 2006 survey

3.6.1 The results of the 2006 reptile survey are given in the table below.

	Visit No.						
Refugia No.	1# 16.05.06	2 24.05.06	3 15.06.06	4 29.06.06	5 07.07.06	6 04.10.06	7 12.10.06
1	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-

Key: f=female, m=male, juv=juvenile,
CL=Common Lizard, SW=Slow Worm, Ad=Adder, GS=Grass snake

visual survey during initial visit

3.6.2 No reptiles were recorded at the Site, and it is considered that, if populations are present, they are likely to be very small, and confined to the immediate vicinity of the stream corridor and at the southernmost tip of the Site, adjacent to an area of semi-improved grassland.

Results of 2009 survey

3.6.3 The results of the 2009 reptile survey are given in the table below.

	Visit No.							
Refugia No.	Set out 05.08.09	1 14.08.09	2 20.08.09	3 28.08.09	4 04.09.09	5 08.09.09	6 14.09.09	7 18.09.09
1	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-
6	-	1 CL	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-

13	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-
18	-	-	1CL	1 CL	-	-	-	-
19	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-

Key: f=female, m=male, juv=juvenile,
CL=Common Lizard, SW=Slow Worm, Ad=Adder, GS=Grass snake

visual survey during initial visit

3.6.4 It is concluded that the site has been colonised by a small population of common lizard since the 2006 survey was undertaken.

3.7 Great Crested Newt survey

3.7.1 The existing survey data does not give an indication as to whether Great Crested Newt might breed in the vicinity of the Site. It is not anticipated that this species, if present within the general area, would forage within the arable fields. No amphibians were found during checks of refugia set out for reptiles in 2006 or 2009.

3.8 Rare Plant survey

3.8.1 Species of rare plant, or plants of conservation interest at the local scale were searched for on an opportunistic basis whilst carrying out other protected species surveys on Site. No species of note were recorded.

3.9 Hedgerow survey

3.9.1 Hedgerows form a large component of the western and southwestern boundaries of the Site. Low hedgerows also occur on the northern Site boundary and through the middle of the Site. The structure and species component of these hedges is shown in the tables below. The hedges are given a reference code which can be related to Figure 08: Hedgerow Survey.

3.9.2 All the species recorded occur commonly in hedges in East Anglia. None of the hedgerows surveyed qualify as species-rich under the Hedgerow Regulations. In terms of species diversity, hedgerow 1, which is situated to the south and west of the Site is the richest with between 2 and 4 woody species present in addition to bramble and ivy. The most frequently occurring

species amongst the hedgerows on the Site are elder and hawthorn. Frequency of occurrence is recorded using the DOMIN scale as set out in the Hedgerow Survey Handbook[12].

Details		Hedge Reference					
		1a	1b	1c	2	3	4
Grid Reference		TL 8961, 4015			TL 8959, 4034	TL 8949, 4032	TL 8948, 4045
Aspect					North	East	North
Bank	Height (m)	0.5-1.0					0.5-1.0
	Type	Earth					Earth
	Management	None					None
Width (m)		1-2			Over 2	1-2	
Fence Height (m)						0.6-1.2	
Average Height excluding bank (m)				4.1	2.1- 4	2.1- 4	2.1- 4
Average base width excluding bank (m)					2.1- 4	1.1- 2	1.1- 2
Signs of Recent Management		None			None	None	None
Integrity (Significant or Minor)				Significant Gaps	Significant Gaps	Significant Gaps	Significant Gaps

Species	Hedge Reference											
	1a		1b		1c		2		3		4	
	H	S	H	S	H	S	H	S	H	S	H	S
Blackthorn			1								5	
Bramble	5											
Elder	7		8		8		8		3			
Hawthorn	7		6		5				9		5	
Ivy	8											

[12] Bickmore C J (2002). Hedgerow Survey Handbook: A Standard Procedure for Local Surveys in the UK. Prepared on behalf of DEFRA, London (Steering Group for the UK Biodiversity Action Plan for Ancient and / or Species-rich Hedgerows).

Field Maple								1 x SM			6	
Oak		M		2 x M								
Dog rose									4			

H = Hedgerow species, S = Standard trees in the hedgerow, M = Mature, SM = Semi-mature

4 Assessment of ecological interest and assessment of impact

4.1 Assessment rationale

4.1.1 The ecological value of the Site is considered below and the potential impact of the mitigated scheme provisionally assessed. The degree of impact assumes that standard mitigation in respect of protected species is undertaken as required, and assumes that the suggestions given below for Site layout, phasing and landscaping are adopted.

4.1.2 The Site Masterplan has been developed to take account of ecological constraints and to minimise impact through appropriate Site layout and design. An Ecological Masterplan (Figure 09) has been produced to highlight specific measures which will be taken to mitigate and compensate for negative impact.

4.2 Statutory and Non-Statutory Wildlife Sites

4.2.1 With the exception of Abbas Hall Wood CWS, the sites of known wildlife interest within 2km of the Site lie at sufficient distance from the proposed development to ensure that either direct or indirect impact is unlikely to occur. There is no direct impact to Abbas Hall Wood CWS, however minor indirect negative impact may occur, for example visual and noise disturbance to breeding birds. There may also be a potential impact resulting from reduced foraging resource for species using the woodland. These impacts are considered to be very minor in nature, due to the distance between the proposed development Site and the woodland margin. Any impact will be compensated for through creation of additional woodland habitat and open grassland, which would provide a foraging resource. The connectivity of Abbas Hall Wood with other wildlife habitats in the area would be enhanced as a result of implementation of the scheme. Abbas Hall CWS is assessed as being of **Medium** value to wildlife at the **County** level. The impact of the proposed scheme is judged to be **Neutral**, although in the longer term this may increase to **Minor Beneficial** as the proposed woodland belt and other habitat creation develops and matures.

4.3 Habitats

4.3.1 The Site is predominantly under arable cultivation. These fields are generally of low value to wildlife, except where, as has happened here, stubbles have been left over winter or into the summer, thus providing an ephemeral foraging resource for wintering birds. There are a number of habitats of some wildlife value (hedgerows, mature trees, grassland and watercourse), peripheral to the arable land, on the Site margins; however these will not be substantially affected by the proposed development.

4.3.2 The wooded fringe along the north-eastern edge of the existing estate is an important habitat for foraging bats and also allows relatively secure movement by Badgers and other mammals. It should therefore not be disturbed in any way by the new development, but instead should be preserved to form a 'green corridor' along the Site boundary. The grassy field verges are known to support Common Lizards in small numbers and are therefore important as habitat for this species and also as wildlife corridors.

4.3.3 Some 7ha of grassland, scrub and woodland will be created through the scheme, and there is an overall net gain in wildlife habitat as a result of the proposals. There are opportunities to

contribute to local BAP targets, for example for creation of Lowland Meadow, through creation of over 4ha of species rich wildflower grassland at the Site (see Figure 09). A sizeable area (1.9ha) of woodland will also be created. Native species should be used for planting/seeding in all instances. A wildflower Lowland Meadow Mix, for example Emorsgate Standard General Purpose Meadow Mix, should be used in all open areas, with the exception of areas which are likely to be heavily used by the public. A Woodland Mixture should be used within the woodland area and under all dense planting, hedgerows etc. The proposed woodland planting should be dominated with those species present in Abbas Hall Wood CWS, notably Small-leaved Lime, Oak, Ash, Field Maple and Hazel, and should also include species which provide a food source for birds and Badger (see below for detail). Supplementary planting for hedgerows should include Hazel, Dogwood, Spindle and Hawthorn.

4.3.4 Overall, the Site habitats are provisionally assessed as being of **Lower** wildlife value at the **Parish/Neighbourhood** scale on the basis that, while semi-natural habitats including mature trees, hedgerows and scrub are present, these are considered to be of **Lower** value in the local, regional and national context. The impact of the proposed scheme upon the habitats present at the Site is assessed as **Neutral**; potentially increasing to **Minor Beneficial** as the proposed woodland planting and grassland creation develops and matures. Any gains in wildlife value in this respect will depend very much upon the extent to which the proposed public open space can be managed so as to ensure a benefit to wildlife.

4.4 Rare, scarce and protected Species

4.4.1 The likely use of the Site by protected and uncommon species, including BAP Priority Species is considered below and the potential impact of the scheme on these species assessed.

Reptiles

Assessment of ecological interest

4.4.2 No evidence of reptile presence was found at the Site during survey undertaken in 2006 however, Common Lizard was found to have colonised the grassy margins of the Site, albeit in small numbers, during the 2009 survey. The use of the Site by is classed as **Lower** at the **Parish/Neighbourhood** scale.

Assessment of impact and proposed mitigation

4.4.3 Since Common Lizards are protected from disturbance by the Wildlife and Countryside Act 1981 (see Appendix 1), mitigation will be required to protect this species from potential negative impact arising from implementation of the development.

4.4.4 It is considered that the value of the Site to reptiles is **Lower** at the **Parish/Neighbourhood** scale since the population is small and scattered over a small area of suitable habitat. The unmitigated impact upon reptiles, a protected species, would be **Minor Adverse.** A significant amount of wildlife habitat has been incorporated into the development including species-rich chalk wildflower meadow with scattered scrub, reptile banks and hibernacula and dense scrub. The creation of the aforementioned habitats would produce a **Minor Beneficial** impact for reptiles in the long run provided that Site clearance was carried out in accordance with a reptile mitigation strategy and that habitat creation was developed prior to Site clearance.

4.4.5 Standard reptile mitigation is set out in 4.5 below. A detailed reptile mitigation strategy will need to be drawn up once site layout plans have been produced. In the absence of development proposal drawings it is not possible to judge what the impact of the development upon reptiles would be. Further assessment is required once these details are available. It may be possible to reduce the impact of the development upon the Common Lizard population if the scheme can be designed in consultation with the Ecologist to ensure that the population is safeguarded.

Bats

Assessment of ecological interest

4.4.6 The Site is used by foraging and commuting bats of a number of species and activity was generally in the area of the southern, northern and south-eastern Site boundaries. It is probable that the stream corridor would also provide a foraging resource and may be used by commuting bats, although such usage was not recorded during the survey. The hedgerow habitats found on Site, may also act as flyways for bats, allowing secure passage across the Site, linkage with habitats in the wider environment and opportunity for feeding. Several trees with low to moderate bat roosting potential were recorded during the walkover survey in 2009. The use of the Site by bats is classed as **Lower** importance at the **District/Borough** scale.

Assessment of impact and proposed mitigation

4.4.7 The wooded strip along the south western boundary of the Site is an important habitat for foraging bats. It should therefore be preserved as a 'green corridor'. A vegetated buffer strip should be retained alongside the wooded strip to ensure adequate offset between the woodland and the development, and hence preserve commuting routes for bats. This corridor should be left unlit, and any lighting in the vicinity should be directed away from the vegetation.

4.4.8 All mature trees present on Site should be retained in the proposed development. It is not intended that these trees be removed or are likely to be subject to arboricultural works as a result of the proposals, however if any work takes place at any time in the future, they will need to be checked for roosting bats. Bat boxes should be erected on all suitable trees in order to supplement roosting potential in the area and mitigate for any minor disturbance (see Figure 09).

4.4.9 The hedgerow habitats found on Site should be retained and strengthened by additional planting, in order to provide linkages with habitats in the wider environment and opportunity for feeding.

4.4.10 Adverse impacts may result from light pollution of habitats or features used by bats for foraging or commuting, or felling of trees for health and safety reasons. Lighting associated with buildings or footpaths should be directed away from the semi-natural habitats to the north and east of the proposed development area. There should be no lighting of the strip of woodland along the southwestern boundary, nor of the stream corridor and therefore there is no potential for the scheme to impact adversely on any roost.

4.4.11 The items identified above, and the proposed woodland planting and other habitat improvements will all help to minimise the impact of this development on the bat population. The impact of the proposed development upon the bat population, assuming that mitigation is undertaken as detailed above, is considered to be **Neutral**.

Breeding birds

Assessment of ecological interest

4.4.12 Most of the species breeding at the Site are widespread and abundant in lowland Britain, and they have populations in the survey area that are small in relation to their national totals. The overall range and number of species currently present in the area falls short of local importance, the lowest category in conservation terms.

4.4.13 The standard criterion upon which evaluation of population size is based is that if 1% or more of the defined geographical population of a species regularly uses a site, then that site is important at that geographical scale.

4.4.14 This means, for example, that if 1% of the national population occurs, then the site is nationally important for that species. The term 'regularly' implies that data should be available for a five-year period; this is not the case for the present survey. Valuable sources of information on national bird populations include Lack (1986), Gibbons *et al.* (1993) Stone *et al.* (1997).and

Eaton *et al* (2009). Taylor *et al* is a valuable source of county level information as are the county bird reports published annually by the Norfolk and Norwich Naturalists Society.

4.4.15 The 1% criterion for importance is widely accepted at national and international levels. It can also be applied for smaller geographical units but problems may then arise when the total population within the unit is small and very small numbers occurring on a site would confer importance. In such cases, consideration may be given to raising the proportion of the population that defines importance: for example, 5% of a county population may be a better measure of county importance than 1%.

4.4.16 All of the species recorded during the survey are still widespread and common in lowland Britain, and numbers over the entire survey area were small (less than 0.1%) in relation to their national totals.

4.4.17 The numbers of territories of species found at Carson's Drive are small in the context of their British populations and none approaches 1%. The closest is Skylark, with 12 territories in 2006.

4.4.18 Totals of all species were unexceptional in a county context, although very little comparative data is available to confirm this.

4.4.19 The number of species recorded in an area (species-richness) is a simple and effective measure of diversity, which can be used to describe conservation value separately for breeding, passage and wintering bird populations. Fuller (1980) provided the following criteria for the breeding season:

Conservation value of population				
Scale	National	Regional	County	Local
No. of species	85+	84-70	69-50	49-25

4.4.20 The total of 22 species falls just short of the lowest category of Local importance (Fuller 1980), which requires a range of 25-49 breeding species.

4.4.21 The occurrence of species which are specially protected by law or otherwise listed as threatened, although not necessarily strictly rare, can also be helpful in establishing the ecological value of sites. Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 or on Annex 1 of the European Community directive on the Conservation of Wild Birds (79/409/EEC) are worthy of special consideration, as are Red and Amber list Birds of Conservation Concern (Eaton *et al* 2009). Red list and Amber list species are those which are regarded as threatened in Britain by virtue of their small populations or declining numbers, or for which Britain supports a considerable proportion of the western European totals. Detailed information and analysis of the compilation of these listings is given in Eaton *et al* 2009.

4.4.22 The site has been assessed in terms of the occurrence of birds of conservation concern based on the recently published review Birds of Conservation Concern 3 (BoCC3) Eaton *et al* 2009. These are species which are regarded as threatened in Britain by virtue of their small populations or declining numbers, or for which Britain supports a considerable proportion of the Western European totals. Species are categorised as red- amber- or green-listed. Red list species are those whose population or range has declined rapidly in recent years, or which have declined historically without a substantial recent recovery. Amber listed species are defined by having: unfavourable population status in Europe; or a very small population size; or having undergone a moderate recent population decline; or having a highly localised distribution; or by occurrence in internationally important numbers. The remaining species are on the green list. Also of particular importance are species included on the UK Biodiversity Action Plan "BAP" List of Priority Species, for which Species Action Plans are drawn up with the aim of improving their status. Prior to the recent publication of BOCC3 the UK BAP List of Priority Species was the most recently published and up to date listing of species of conservation concern.

4.4.23 6 red-listed species were recorded in the survey area: Skylark, Song Thrush, House Sparrow, Starling and Linnet.

4.4.24 4 amber-listed species were recorded in the survey area: Green Woodpecker, House Martin, Dunnock, and Whitethroat.

4.4.25 The following 6 species on the UK BAP list of priority species were recorded in the survey area: Skylark, Dunnock, Song Thrush, House Sparrow, Starling and Linnet.

4.4.26 The status of all species of conservation concern is summarised in the table below:

Species of particular conservation value breeding in 2006

Species	BAP Priority	RSPB Red List	RSPB Amber List	Reason for designation
Green Woodpecker			✓	Species of European Conservation Concern
Skylark	✓	✓		50% or more decline of UK breeding population over last 25 years Species of European Conservation Concern
House Martin			✓	Species of European Conservation Concern 25-49% decline of UK breeding population over last 25 years
Dunnock	✓		✓	25-49% decline of UK breeding population over last 25 years
Song Thrush	✓	✓		50% or more decline of UK breeding population over last 25 years
House Sparrow	✓	✓		50% or more decline of UK breeding population over last 25 years Species of European Conservation Concern
Whitethroat			✓	25-49% decline of UK breeding population over last 25 years
Starling	✓	✓		50% or more decline of UK breeding population over last 25 years
Linnet	✓	✓		50% or more decline of UK breeding population over last 25 years
TOTAL	**6**	**5**	**4**	

4.4.27 The national population of Skylark is considered to have declined by 50% or more during the last 25 years. It should be noted that this species is largely dependent on arable cultivation as a breeding habitat. Song Thrush, Starling, House Sparrow and Linnet are also considered to have suffered declines of 50% or more over the same period. These 5 species are included in the RSPB Red List of birds of conservation concern. Dunnock, House Martin and Whitethroat are considered to have declined by 25-49% over the last 25 years, while Green Woodpecker is a species of European Conservation Concern. These 2 species are included in the RSPB Amber List of Birds of conservation concern. House Martins were recorded feeding over the wheat fields but do not actually breed on site. This feeding may however be important to their breeding effort.

4.4.28 In summary, the survey area has a small, relatively species-poor breeding bird community, albeit one which is larger than expected for a small arable site. The population falls just short of the category of local importance, the lowest in conservation terms. Both species-variety and numbers of birds are typical of intensively farmed arable habitats. The only exception was the high number of Skylarks on a set-a-side field. Overall, the breeding bird assemblage within the Site would therefore best be classified as of **Lower** value at the **Parish/Neighbourhood** scale.

Assessment of impact and proposed mitigation

4.4.29 Site clearance operations have the potential for destruction, damage or disturbance of nests, both in woody vegetation and in open farmland/grassland habitat and the consequent incidental mortality of chicks or eggs. There may be temporary or permanent loss of nesting or foraging habitat depending upon specific species requirements.

4.4.30 Site implementation works would result in noise and visual disturbance close to areas of retained vegetation, and therefore there may be an additional short-term degradation of habitat for breeding birds within the Site.

4.4.31 It is assumed that marginal vegetation in the west and southwest and along the eastern boundary of the Site will be retained. There may be short term reduction in nesting habitat availability for some species as a result of local noise and visual disturbance. In the longer term, however, the species recorded here such as Whitethroat and Linnet are considered likely to continue to nest in the retained vegetation and would be able to forage in the proposed semi-natural vegetation (woodland and grassland) on the Site. In the longer term populations of these species should therefore remain near-constant. Much would depend on the quality of the communal planting and the degree of human disturbance to the retained semi-natural habitats by, for example, dog walkers.

4.4.32 Populations of those species which are particularly adapted to living in and around gardens and houses may increase in number, Collared Dove, Blackbird and Greenfinch for example.

4.4.33 Some 7ha of new wildlife habitat would be created through the scheme, including wildflower grassland, woodland, scrub and an orchard. These features will provide additional nesting and foraging habitats leading to an overall increase in habitat quality for this group. The value of the new habitats to breeding birds is likely to be in part determined by levels of human disturbance, by dog walkers for example, on nesting birds in existing and new habitats. Areas of new planting should therefore be created which have no formal public access. As noted above, nestboxes and provision of nesting facilities for hole nesting species such as Great and Blue Tits on trees and Starling, House Sparrows and Swifts on buildings would increase potential nesting habitats and mitigation for negative impacts. The value of the new habitats would also depend on the quality of the communal planting and semi-natural planting which should include berry bearing trees and shrubs and invertebrate-supporting native species to enhance food availability, and should be structurally diverse with areas of dense scrub as well as more open areas. Species which should be included within communal planting are: *Cotoneaster frigidus, Cotoneaster franchetii, Cotoneaster lacteus, Cotnoeaster integrifolius, Cotoneaster simonsii, Cotoneaster x watereri, Cotoneaster horizontalis, Cornus alba, Cytisus scoparius, Symphoricarpos albus, Viburnum tinus, Amelanchier lamarckii, Berberis wilsonii,*

Berberis x stenophylla, Berberis thunbergii, Berberis darwinii, Lonicera spp, *Escallonia macrantha, Hebe* spp., *Pyracantha coccinea, Buddleia davidii, Mahonia aquifolium, Prunus cerasus, Hippophae rhamnoides* (both male and female plants).

4.4.34 The proposed woodland should be structurally diverse with tree, shrub and ground layers and should include species indigenous to Suffolk. Species appropriate for woodland planting include: Small-leaved Lime, Ash, English Oak, Holly, Hawthorn, Rowan, Honeysuckle, Holly, Field Maple, Dog Rose and Hazel. Species appropriate for general planting and to supplement the green corridor include: Crab Apple, Wild Cherry, Bramble, Spindle, Dogwood, Field Maple, English Oak, Ash, Dog Rose, Holly, Rowan, Hazel, Blackthorn, Dog Rose, Greengage, Bullace, Damson, Hawthorn, Blackthorn and Elder. Alder, Buckthorn, Guelder Rose, Dog Rose, Sallow and Bird Cherry should be used for supplementary planting in wetter areas along the stream corridor (see Figure 09: Ecological Masterplan).

4.4.35 Provided that attention is given to appropriate woodland and communal planting, the proposed development would probably be beneficial in terms of total numbers of breeding birds given that most of the birds recorded were using gardens, trees, and hedgerows adjacent to the Site and that the farmland held very few birds.

4.4.36 The exception to this would be the 12 pairs of Skylarks which would be lost as a result of the proposed development. The numbers of Skylark were higher than might be expected on a landholding of this size because of the favourable conditions provided by the set-a-side field. Skylark breeding habitat will be lost in the proposed development and only partially replaced by proposed meadow and grassland creation, some of which should not be accessible to the public in order to safeguard any nesting attempts. This impact is therefore difficult to mitigate although steps would be taken to persuade local landowners to provide Skylark breeding plots on adjacent farmland and to ensure the cropping regime of the retained arable field favours Skylark.

4.4.37 The short–term impact of the development upon breeding birds is considered to be **Minor Adverse** as a result of disturbance and to a lesser extent direct habitat loss. Provided that the habitat creation measures and other mitigation measures outlined above are adopted, the impact of the proposed development upon the breeding bird assemblage within the Site in the longer term would be generally beneficial and is best classified as **Minor Beneficial**, although there would remain a **Minor Adverse** impact upon populations of Skylark as described above.

Badger

Assessment of ecological interest

4.4.38 Badgers are by nature creatures of habit, and often use the same pathways night after night. Such pathways become well worn and especially noticeable in the winter when the vegetation is low. The pathways may connect the main sett to an annexe, good foraging areas as well as mark the extent of the territory.

4.4.39 Whilst no actual excavated setts were located on the proposed development Site it was obvious that it was occasionally used by foraging Badgers. Few badger pathways were evident across the arable with most being on grassy headlands or the area of semi-improved grasslands. Such grasslands are most important to the Badgers as they supply a major part of their diet (earthworms).

4.4.40 The southerly route taken by the Badgers is marked along its length by numerous dug pits, which may indicate the boundary of another social group located within the Abbas Hall woodland.

4.4.41 The use of the Site by Badgers is classed as being of **Lower** importance at the **District/Borough** scale.

Assessment of impact and proposed mitigation

4.4.42 It is thought that an increase in housing northeastwards from the existing urban edge would have limited impact on the Badgers foraging activity provided that mitigation proposals are put in place to protect the Badger from excessive disturbance, both from the new occupants and their pets and any additional increase in human activity on the Site.

4.4.43 The existing woodland strip between the old and new housing should be made more attractive to Badgers with additional tree and shrub planting designed to provide a food source as well as cover and should be fenced to stop human access (gates should be constructed at intervals along the fence to allow Badger access).

4.4.44 The new housing development should be adequately fenced from the Badgers (where possible) as they are known to cause considerable damage to new lawns and plantings during the establishment stage. This can be greatly reduced by completing the landscaping i.e. new woodland planting and public open space at an early stage of the development. Secure fencing at the built stage will prevent conflict between people and Badgers.

4.4.45 Measures should be put in place to protect animals from Site hazards during construction: deep trenches should be securely fenced and all potentially noxious materials, chemicals etc should be kept in containers.

4.4.46 Areas of new grassland should be planned and managed not only for public access but also with the Badgers in mind. The new woodland planting should be rabbit fenced with gates erected on the Badger desire lines to allow their undisturbed access to the new foraging areas. If possible a humus layer should be added (along with earthworms) prior to seeding.

4.4.47 Public access should be routed away from Badger setts and paths as much as possible. New paths should not be routed within 30m of Badger setts and the vegetation between paths and setts should include scrub planting and areas of long grass to dissuade public access.

4.4.48 The overall attractiveness of the Site for the Badgers can be increased by new tree and shrub planting together with suitable management regimes for the grasslands. Suitable native trees and shrubs include Crab Apple, Rowan, Hazel, Blackthorn, Dog Rose and Elder. A small orchard is also proposed, which will offer enhanced feeding opportunity for this species.

4.4.49 The magnitude of impact from development upon badgers using the Site is classified as **Minor Negative** due to the significant loss of foraging habitat that will occur. The overall significance of impact of the development on Badgers provided that the proposed mitigation is adopted is classed as **Minor Adverse**. As the woodland belt develops, it is anticipated that this impact will reduce to **Neutral** or **Minor Beneficial**.

Hedgerows

Assessment of ecological interest

4.4.50 In line with guidance set out in the Hedgerow Regulations 1997, none of the hedgerows on Site constitute an 'important' hedge, or qualify to be included as BAP Priority Habitat Ancient/Species Rich Hedgerow. It should be noted however, that the hedgerows are likely to provide habitat for breeding birds and also act as flyways for safe movement and foraging by bats. Some of the mature trees within the hedgerow on the southwestern boundary have been highlighted as having bat roosting potential (see above). The hedgerows present on Site are classed as being of **Lower** value at the **Parish/Neighbourhood** scale.

Assessment of impact and proposed mitigation

4.4.51 The Ecological Masterplan for the proposed development (Figure 09) assumes the retention of the existing hedgerow habitats within the Site, and as such the impact upon the hedgerows is assessed as being **Neutral**. Additional hedgerow planting and strengthening of existing hedges will take place, which will provide a network of wildlife corridors linking to the new area of woodland. As this planting matures, impact may reduce further to **Minor Beneficial**.

4.5 Reptile mitigation strategy

4.5.1 The proposed development could result in the loss of the Common Lizard population at the Site. A detailed mitigation strategy will need to be developed in order to safeguard the population from loss, fragmentation or injury. The detailed mitigation strategy would need to be designed once a sensitive development layout has been agreed. However, standard mitigation for development in areas where reptiles are present would include the following, assuming provision has been made for them to remain in suitable habitat within the Site

- Vegetation clearance should take place before between May and September, when reptiles are active and able to move away from disturbance. The current landscape proposals makes extensive provision for habitat enhancement around the perimeter of the area used by reptiles and it is imperative that reptiles are allowed to move into these areas.
- Vegetation management should be carried out under the supervision of a Landscape Partnership ecologist and will ensure that vegetation is removed in such a way as to encourage reptiles to move into the remaining wildlife habitat on Site which is to be retained and enhanced, for example, cutting vegetation so as to commence work in the centre of the Site and out towards the edges.
- Vegetation clearance should take place in 3 stages:
    1. strimming of vegetation down to 25cm
    2. leaving the Site untouched for 24 hours following this first stage of strimming to allow reptiles to move away and then strimming down to 10cm
    3. leaving the Site untouched for at least a further 24 hours before total Site clearance
- In addition, anthills should be removed by hand allowing any reptiles to move away into surrounding habitat prior to Site clearance.
- It should be noted that timing for vegetation removal to avoid damage to reptiles, coincides with the bird nesting season. Therefore, no vegetation clearance should take place without first having been checked by an Ecologist for breeding birds.

4.6 Overall assessment of value

4.6.1 The potential ecological constraints to the proposed extraction works are firstly the habitats of wildlife value on the Site and its margins and secondly any protected species which might be present.

4.6.2 Overall, the Site habitats and the species they support are assessed as being of **Lower** Biodiversity value at the **District/Borough** scale[13].

4.7 Overall assessment of impact

4.7.1 There is potential for the proposed development to have negative impact upon the following species or species groups: bats, Badgers and breeding birds. There may be impact upon reptiles should the Site be left undisturbed preceding the start of construction. The Site Ecological Masterplan (Figure 09) has been revised to take account of ecological constraints and opportunities, and some 7ha of new wildlife habitat would be created. The mitigated scheme is

[13] The assessment method for ecological impacts is based on the emerging Institute of Ecology and Environmental Management Guidelines on Ecological Impact Assessment (EcIA), and GOMMMS. This is a three-stage process where the value of the ecological receptor and the magnitude of the impact are cross-tabulated to identify impact significance (Appendix 4).

considered to result in an overall **Minor Adverse** impact upon species and habitats in the short term. As the new habitats develop, the eventual overall impact of the scheme is considered to be **Neutral** or **Minor Beneficial**. Beyond this, the level of benefit would depend upon the success of long-term management of the habitats created.

5 Conclusion and Recommendations

5.1 Conclusions

5.1.1 On the basis of the available information (see Limitations to survey), the Site is considered overall to be of **Lower** ecological value at the **District/Borough** scale and the significance of impact of the proposed scheme, assuming adoption of the recommended mitigation, is judged to be **Minor Adverse**. The negative impact is likely to reduce overall to **Minor Beneficial** as the proposed habitat creation proceeds. If it is possible to ensure effective management of these habitats for nature conservation in the longer terms, there is potential for this scheme to deliver a **Moderate** or **Major Benefit** in respect of a 4ha gain in Lowland Meadow Biodiversity Action Plan habitat. Measures should be put in place to secure the long-term management of the semi-natural habitats on Site to ensure that this is the case.

5.2 Recommendations

5.2.1 To ensure the long term success of the Site for wildlife and conservation value, it is recommended that a Management Plan is drawn up and adopted which will incorporate Site management during the construction phase as well as longer-term management. The plan will highlight best practice routines and seasonal constraints in respect of wildlife through the various phases of development.

Part 2: Appendices

Appendix 1
Wildlife site citations

Sites of Special Scientific Interest

COUNTY: SUFFOLK SITE NAME: CORNARD MERE, LITTLE CORNARD

DISTRICT: BABERGH

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: BABERGH DISTRICT COUNCIL

National Grid Reference: TL 888389 Area: 6.09 (ha.) 15.05 (ac.)

Ordnance Survey Sheet 1:50,000: 155 1:10,000: TL 83 NE

Date Notified (Under 1949 Act.): 1972 Date of Last Revision: –

Date Notified (Under 1981 Act): 1986 Date of Last Revision: –

Other Information:
Site reduced in size at re-notification.

Description and Reasons for Notification:
Cornard Mere comprises a seasonally flooded area of fen, species-rich ruderal herb vegetation, woodland, scrub and neutral grassland occupying a shallow basin on a mixture of peat and glacial sands. Traditional management with regular cutting maintains a varied flora with many species typical of wetland communities.

Tall fen vegetation dominated by Reed Sweet-grass *Glyceria maxima* and Reed *Phragmites australis* occupies much of the site. Associated species include Yellow Loosestrife *Lysimachia vulgaris*, Meadowsweet *Filipendula ulmaria*, Hemp Agrimony *Eupatorium cannabinum* and Yellow Iris *Iris pseudacorus*. There are also sizeable stands of Meadow Rue *Thalictrum flavum* and Water Dock *Rumex hydrolapathum* and a small population of Bogbean *Menyanthes trifoliata* and Marsh Cinquefoil *Potentilla palustris*.

A species-rich inundation community has developed on drier ground. Reed Canary-grass *Phalaris arundinacea* and Tufted Hair-grass *Deschampsia cespitosa* are abundant together with a variety of rushes and sedges. Herb species present include Water Mint *Mentha aquatica*, Gypsywort *Lycopus europaeus*, Skullcap *Scutellaria galericulata*, Ragged Robin *Lychnis flos-cuculi* and Southern Marsh Orchid *Dactylorhiza praetermissa*.

Outlying parts of the site support a species-rich ruderal herb community fringed by sallow scrub. Nettle, great willowherb, common fleabane and white dead nettle are most abundant. Associated species include Angelica *Angelica sylvestris*, Marsh Woundwort *Stachys palustris*, Fen Bedstraw *Galium uliginosum* and Common Toadflax *Linaria vulgaris*.

Willows dominate much of the woodland, merging into young oak, birch and hazel on drier ground. The ground flora is dominated largely by nettle, but in wetter areas Hop *Humulus lupulus*, Lady's Smock *Cardamine pratensis*, Bittersweet *Solanum dulcamara*, and Male Fern *Dryopteris filix-mas* are frequent.

Much of the unimproved neutral grassland is mown to form a path along the southern boundary. It consists mainly of Oat grass, Yorkshire Fog and Cocksfoot.

Cornard Mere attracts considerable numbers of over-wintering snipe and provides a habitat for a variety of insects, including an uncommon sawfly.

Appendix 1 (cont.)

County Wildlife Sites

Distcode	Babergh 54
Site Name	ABBAS HALL WOOD
Grid Reference	TL901402
Parish	GREAT CORNARD
District	Babergh
Overlap district	
Area (ha)	2.79
Description	Abbas Hall Wood, a small woodland, is located close to the outskirts of Sudbury. It is an ancient woodland which is included in the Suffolk Ancient Woodland Inventory. The southern half of the wood consists of oak, ash, field maple and occasional cherry coppice with an understorey of hazel coppice. In contrast the northern half of the wood contains a high concentration of mature cherry with only occasional ash and hazel present. Small-leaved lime, a tree species strongly associated with ancient woods is also present in small quantities. The field layer comprises of dense growth of bramble throughout interspersed with patches of bluebell. A large lake has been constructed to the south of the wood. It is surrounded by mainly native shrubs and trees for example aspen, willow and alder. Amphibious bistort, an uncommon plant, grows around and in the lake itself. This area of open water in close proximity to ancient woodland provides valuable and additional habitat for invertebrates particularly dragonflies and for breeding birds.

Appendix 2

Target Notes

1. Overgrown hedgerow including some mature trees, associated with footpath. Provides good cover for birds and acts as a wildlife corridor. It may hold some potential as Slow-Worm habitat.
2. A disused green lane associated with an overgrown and gappy hedge with standard mature trees. May provide potential habitat for Slow-Worms as well as bat roosting opportunities. The corridor could provide a bat flyway and foraging habitat.
3. A discontinuous hedge, including non-native planting creating garden boundaries.
4. Overwintered stubble: A mixed flock of Meadow Pipit, Yellowhammer and Skylark (25+) were seen using the stubble field during the Phase 1 habitat survey.
5. A south facing bank providing possible reptile habitat and opportunities for linkages with other habitat.
6. Overwintered stubble: Yellowhammer and Greenfinch were observed using this part of the Site during the survey.
7. Arable field with stepped topography including terrace and uncultivated lynchet. The uncultivated slope is south facing and with a covering of rough grassland and scrub could provide suitable habitat for reptiles and Badgers.
8. A small stream running along the eastern border of one of the arable fields. Mature trees along part of the length provide flyways for bats and give roosting potential. The stream corridor also provides suitable habitat for Grass Snakes and there is some potential for Water Voles to be present at the downstream end.
9. An area of scrub to the south-east of the Site which may have potential as Nightingale habitat.
10. Uncultivated corner of a field with rough grassland, tall ruderal species and scrub. The area provides good cover and nesting habitat for birds and offers suitable conditions for reptiles. Song Thrush was seen foraging in this corner during the survey.
11. A gappy, species poor hedge running along the southern boundary to the Site.
12. Orchard.

Appendix 3

Rare, scarce and/or protected species

Common name	Latin name	Location	Site detail	Grid ref	Year
Good King Henry	*Chenopodium bonus-henricus*	Cornard Mere		TL83Z	2001
Black Poplar	*Populus nigra betulifolia*	Great Cornard	Wrongs Fm	TL893397	1991
Black Poplar	*Populus nigra betulifolia*	Great Cornard		TL893408	1991
Black Poplar	*Populus nigra betulifolia*	Great Cornard	Pot Kilns	TL894409	1998
Black Poplar	*Populus nigra betulifolia*	Great Cornard	/TL893410	TL894400	1991
Bog Pimpernel	*Anagallis tenella*	Cornard Mere		TL83Z	2001
Brookweed	*Samolus valerandi*	Cornard Mere		TL83Z	2001
Sulphur Clover	*Trifolium ochroleucon*	Great Cornard	Great Cornard Country park	TL893393	2000
Sulphur Clover	*Trifolium ochroleucon*	Great Cornard		TL895392	1987
Water Purslane	*Lythrum portula*	Newton Green		TL94A	2002
Dwarf Spurge	*Euphorbia exigua*	West Suffolk	West Suffolk	TL8841	1996
Dwarf Spurge	*Euphorbia exigua*	Great Cornard	South of Prospect Hill, playground field	TL896395	2000
Dwarf Spurge	*Euphorbia exigua*	West Suffolk	West Suffolk	TL8941	1996
Sheperd's needle	*Scandix pecten-veneris*	Little Cornard		TL899392	1999
Tubular Water-Dropwort	*Oenanthe fistulosa*	Newton Green		TL94A	2002
Fine-Leaved Water-Dropwort	*Oenanthe aquatica*	Great Cornard		TL94A	2005
Lesser Calamint	*Clinopodium calamintha*	Great Cornard		TL895396	2002
Cornflower	*Centaurea cyanus*	Great Cornard	Great Cornard Country park	TL893393	2000
Cornflower	*Centaurea cyanus*	Great Cornard	South of Prospect Hill, playground field	TL896395	2000
Rough Hawk's-Beard	*Crepis biennis*	Great Cornard	Cornard Country Park	TL892392	2007
Common Cudweed	*Filago vulgaris*	Little Cornard		TL93E	2003
Common Cudweed	*Filago vulgaris*	West Suffolk	West Suffolk	TL8939	1996
Common Cudweed	*Filago vulgaris*	West Suffolk	West Suffolk	TL8941	1996
Common Cudweed	*Filago vulgaris*	Great Cornard	Danes Hole Field, Gt Cornard	TL893393	2007
Common Cudweed	*Filago vulgaris*	Great Cornard	land ne of Shawlands Av.	TL889411	1998
Corn Marigold	*Chrysanthemum segetum*	Great Cornard	South of Prospect Hill, playground field	TL896395	2000
Slender Tufted-Sedge	*Carex acuta*	West Suffolk	West Suffolk	TL8840	1996
Tufted Sedge	*Carex elata*	West Suffolk	West Suffolk	TL8839	1996
Lunar Yellow Underwing	*Noctua orbona*	Great Cornard	Great Cornard	TL886407	2003

Shaded Fan-Foot	*Herminia tarsicrinalis*	Great Cornard	Great Cornard	TL886407	2003
Great Crested Newt	*Triturus cristatus*	Newton Green	Newton Green	TL907403	1988
Great Crested Newt	*Triturus cristatus*	Great Cornard	Wells Hall Rd.	TL892397	1984
Great Crested Newt	*Triturus cristatus*	Newton Green	Newton Green	TL906404	1988
Common Toad	*Bufo bufo*	Great Cornard	Bures Rd.	TL884403	1990
Viviparous Lizard	*Lacerta vivipara*	Great Cornard	Great Cornard, Country Park	TL897394	2005
Viviparous Lizard	*Lacerta vivipara*	Great Cornard	Great Cornard, Country Park	TL896394	2005
Viviparous Lizard	*Lacerta vivipara*	Great Cornard	Great Cornard, Country Park	TL894397	2005
Viviparous Lizard	*Lacerta vivipara*	Chilton	Chilton Nr Backhouse Lane	TL889396	2006
Viviparous Lizard	*Lacerta vivipara*	Sudbury	Shawlands Ave, Bank & Field, Sudbury	TL888412	1999
Viviparous Lizard	*Lacerta vivipara*	Great Cornard	Shawlands Ave, East Bank	TL888411	1998
Viviparous Lizard	*Lacerta vivipara*	Great Cornard	Pot Kilns Amenity Area	TL892411	1998
Viviparous Lizard	*Lacerta vivipara*	Great Cornard	Blackhorse Lane, Gt Cornard	TL8940	1999
Viviparous Lizard	*Lacerta vivipara*	Sudbury	Sudbury, Shawlands	TL8841	2001
Slow-Worm	*Anguis fragilis*	Sudbury	Shawlands Ave, Bank & Field, Sudbury	TL888412	1999
Slow-Worm	*Anguis fragilis*	Sudbury	Peck's Meadow	TL8840	1999
Slow-Worm	*Anguis fragilis*	Great Cornard	Great Cornard, Roadside near The Pot Kilns	TL891410	2005
Grass Snake	*Natrix natrix*	Great Cornard	Country Park	TL895396	1990
Grass Snake	*Natrix natrix*	Chilton	Chilton Nr Backhouse Lane	TL889396	2006
Grass Snake	*Natrix natrix*	Great Cornard		TL892397	1984
Grass Snake	*Natrix natrix*	Sudbury	Sudbury, Bures Road	TL8841	2001
Black Tern	*Chlidonias niger*	Little Cornard	R.Stour	TL9039	1991
Kingfisher	*Alcedo atthis*	Great Cornard	Bakers Mill	TL8840	1994
Spotted Flycatcher	*Muscicapa striata*	Great Cornard	Great Cornard	TL8940	2004
Reed Bunting	*Emberiza schoeniclus*	Cornard Mere	Cornard Mere	TL8839	2004
Hedgehog	*Erinaceus europaeus*	Great Cornard		TL8839	1991
Hedgehog	*Erinaceus europaeus*	Sudbury		TL8840	1991
Hedgehog	*Erinaceus europaeus*	Sudbury		TL8841	1990
Hedgehog	*Erinaceus europaeus*	Little Cornard		TL9039	1991
Water Shrew	*Neomys fodiens*	Sudbury		TL8840	1991
Serotine	*Eptesicus serotinus*	Great Cornard		TL8940	1991
Pipistrelle	*Pipistrellus pipistrellus*	Great Cornard	16 Canhams Road, Great Cornard	TL8940	1991
Pipistrelle	*Pipistrellus pipistrellus*	Sudbury	Minsmere Way	TL891409	1994
Pipistrelle	*Pipistrellus pipistrellus*	Great Cornard		TL8839	1991
Pipistrelle	*Pipistrellus pipistrellus*	Great Cornard		TL8840	1991

Water Vole	*Arvicola terrestris*	Sudbury		TL8840	1991
Harvest Mouse	*Micromys minutus*	Sudbury	Shawlands Ave	TL888412	2008
Badger	*Meles meles*	Great Cornard	Roadbank	TL89654060	2007
Badger	*Meles meles*	Great Cornard	Great Cornard	TL89983995	N/A

Source: SBRC 2009

Appendix 4

Results of breeding bird survey 2006

Estimated numbers of territories of breeding species, 2006	
Species	Territories[#]
Woodpigeon	7
Collared Dove	5
Green Woodpecker	1
Skylark	12
House Martin	0
Pied Wagtail	0
Wren	3
Dunnock	4
Robin	3
Blackbird	5
Song Thrush	2
Whitethroat	4
Blackcap	2
Chiffchaff	0
Blue Tit	2
Great Tit	2
Starling	1
House Sparrow	4
Chaffinch	3
Greenfinch	3
Goldfinch	1
Linnet	2
Number of species	***22***
Number of territories	***66***

[#] 0 in this column denotes bird present on Site but not breeding

Appendix 5

Recordings made during bat survey

2006 survey

TRANSECT No: A	**DATE:** 7 July 2006	**SURVEYOR:** MWF
HABITAT DESCRITPTION: Mainly arable with set-a-side fields. Large boundary hedgerows with mature oak trees; scrub, tall herb and residential housing.		
WEATHER: Hot and humid during the day with a max temperature of 26°C with periods of heavy rain throughout the afternoon and early evening. Wind SW still to light (1- 2 Beaufort), cloud cover 6/10, end temperature 11°C.		
END TEMP: 11°C	**WIND SPEED & DIRECTION:** SW Still – Light (1-2 Beaufort)	**CLOUD COVER:** 6/10
START TIME: 9:18pm	**END TIME:** 11:06pm	
TRANSECT SUMMARY: Bats recorded from 7 sections (all along the woodland strip between a set-a-side and existing housing) namely Common pipistrelle (45P), Noctule, Serotine and an unidentified Myotis sp.		

LOCATION	NOTES
1	No bat registrations
2	No bat registrations
3	A very faint registration from a Noctule (3-5secs) and a second pass several minutes later a little louder (not seen)
4	Single Common Pipistrelle (from north-west) x 2 passes followed by a second Common Pipistrelle c30 seconds later from the same direction (both visual)
5	Two Common Pipistrelle x 1 pass followed by third, which on passing the observer turned and crossed the open set aside field. All bats from a north-westerly direction and visual
6	A brief and faint Common Pipistrelle registration followed by another from the south-east x 1 pass, then another from the north-west (possibly same bat - visual). A single Serotine x 1 pass at tree top height from the south-east
7	A faint Pipistrelle and a faint unidentified Myotis sp.
8	Brief, faint Serotine registration
9	Common Pipistrelle x 7 passes

NB. Refer to Figure 05a: Bat survey for location points (static recording points) 2006

2009 survey

TRANSECT No: B	**DATE:** 29 September 2009	**SURVEYOR:** TM
HABITAT DESCRITPTION: Mainly arable with large boundary hedgerows including mature oak trees; scrub, tall herb and residential housing.		
WEATHER: Dry and warm (18.6°C) with no rain and little cloud cover at the start of the survey. Wind SE still to light at the start of survey before picking up in the middle section of the survey along the southern end of the Site.		
START TEMP: 18.6°C	**WIND SPEED & DIRECTION:** SE still – light at the start of the survey (1-2 Beaufort), but picked up in the mid-section along the southern section of the Site.	**CLOUD COVER:** 20%
START TIME: 18:35	**END TIME:** 19:53	
TRANSECT SUMMARY: Bats were recorded on the northern, northeastern and southern boundaries. Species included Common and Soprano Pipistrelles and unidentified Myotis Spp.		

LOCATION	NOTES
1	**Transect length & stopping point 1** – no bat registrations.
2	**Transect length & stopping point 2** – no bat registrations along the transect length. A brief Common Pipistrelle heard (38mins after sunset) at stopping point although not seen. Bat seen on second pass (39mins after sunset) flying southwards over the hedge in the southwestern corner of Site.
3	**Transect length & stopping point 3** - brief Myotis call heard (39mins after sunset) although bat not seen. Four Common Pipistrelle passes noted (42mins after sunset) with bats flying southwestwards over the southern hedge before feeding in the neighbouring field. Two further passes (Common & Soprano Pipistrelle) were recorded but not seen at 44 & 45mins after sunset. At stopping point 3 Common Pipistrelles heard feeding nearby (37mins – 42mins after sunset) although bats not seen.
4	**Transect length & stopping point 4** - no bat registrations along the transect length. Two Common Pipistrelle passes noted (49mins after) first pass not seen, second pass Pipistrelle seen encircling the tree canopy on ditch corner for remainder of stop.
5	**Transect length & stopping point 5** – Two Soprano Pipistrelle passes heard (59mins after sunset) bats not seen in fading light conditions. Two Common Pipistrelle passes noted (64mins after sunset) – bats flying eastwards adjacent to road. Myotis spp. pass recorded (67mins after sunset) although bat not seen.
6	**Transect length before end of survey** – Two Myotis spp. passes recorded (69mins after sunset) with bat seen flying east then west along edge of tree cover approx. 10ft above ground level. Common Pipistrelle heard feeding (71mins after sunset) although bat not seen. Common & Soprano Pipistrelles heard feeding together (72mins after sunset) and single Soprano Pipistrelle (76mins after sunset) although no bats seen.

NB. Refer to Figure 05b: Bat survey for location points (static recording points) 2009

Appendix 6

Planning status

PPS9

PPS9 states that:

> *The aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. Where granting planning permission would result in significant harm to those interests, local planning authorities will need to be satisfied that the development cannot reasonably be located on any alternative sites that would result in less or no harm. In the absence of any such alternatives, local planning authorities should ensure that, before planning permission is granted, adequate mitigation measures are put in place. Where a planning decision would result in significant harm to biodiversity and geological interests which cannot be prevented or adequately mitigated against, appropriate compensation measures should be sought. If that significant harm cannot be prevented, adequately mitigated against, or compensated for, then planning permission should be refused.*

PPS9 provides the following advice in respect of sites of International importance (SACs and SPAs) and National importance (SSSIs and NNRs):

> ***International Sites***
>
> *The most important sites for biodiversity are those identified through international conventions and European Directives. Since they enjoy statutory protection specific polices in respect of these sites should not be included in local development documents (see also Part I of ODPM/Defra Circular ODPM 06/2005, Defra 01/2005). The Habitats Regulations do not provide statutory protection for potential Special Protection Areas (pSPAs) or to candidate Special Areas of Conservation (cSACs) before they have been agreed with the European Commission. For the purposes of considering development proposals affecting them, as a matter of policy, the Government wishes pSPAs and cSACs included in a list sent to the European Commission, to be considered in the same way as if they had already been classified or designated.*
>
> ***National Sites***
>
> *Many SSSIs are also designated as sites of international importance and will be protected accordingly. Those that are not, or those features of SSSIs not covered by an international designation, should be given a high degree of protection under the planning system (see also Part II of ODPM/Defra Circular ODPM 06/2005, Defra 01/2005) through appropriate policies in plans. Where a proposed development on land within or outside a SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), planning permission should not normally be granted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs. Local authorities should use conditions and/or planning obligations to mitigate the harmful aspects of the development and where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest.*

PPS9 provides the following advice in respect of sites of Regional and Local sites:

> ***Regional and Local Sites***
>
> *Sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Sites, have a fundamental role*

to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community; and in supporting research and education. Criteria-based policies should be established in local development documents against which proposals for any development on, or affecting, such sites will be judged. These policies should be distinguished from those applied to nationally important sites.

PPS9 provides the following advice which is specific to conservation of Biodiversity interest within development:

Biodiversity within Developments

Development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design. When considering proposals, local planning authorities should maximise such opportunities in and around developments, using planning obligations where appropriate.

Species Protection

[A number of] species have been identified as requiring conservation action as species of principal importance for the conservation of biodiversity in England [Biodiversity Action Plan Priority Species]. Local authorities should take measures to protect the habitats of these species from further decline through policies in local development documents. Planning authorities should ensure that these species are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations. Planning authorities should refuse permission where harm to the species or their habitats would result unless the need for, and benefits of, the development clearly outweigh that harm.

Circular 06/05 provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It says, in relation to protected species

98. The presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. Local authorities should consult English Nature before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species' protection provisions affecting the site concerned. For European protected species (i.e. those species protected under the Habitats Regulations) further strict provisions apply, as explained below, to which planning authorities must have regard.

99. 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 the 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 the permission is granted. In appropriate circumstances the permission may also

impose a condition preventing the development from proceeding without the prior acquisition of a licence .....

Regional Spatial Stratgey

The East of England Regional Assembly (EERA) has prepared a new Regional Spatial Strategy (RSS) for the East of England called the East of England Plan (May 2008). This plan will update the existing RSS14 up to 2021.

The plans and policies relating to ecology in the RSS are summarised as follows:

- **POLICY AP8: Countryside Protection** - The landscape quality and character of the Countryside will be protected for its own sake by generally restricting development to that which is essential for the efficient operation of agriculture, forestry and horticulture or is otherwise permitted by other policies in the Local Plan.
- **POLICY AP10: Management Plans** - The District Council will actively encourage the implementation of the Suffolk Coast and Heaths Management Plan, the Greenways Project Strategy and the Suffolk Biodiversity Action Plan.
- **POLICY AP14 Wildlife and Habitats** - Development will not be permitted if it could result in:
  a. the loss, or significant alteration of important habitats, including heathland, woodland, dunes, water meadows, other permanent pasture, parkland, marshes, saltmarshes, vegetated shingle, mudflats, streams, ponds, reedbeds, green lanes, trees and hedges;
  b. the threat to rare or vulnerable species, especially those protected by law; and
  c. the threat to species or habitats identified in National or Local Biodiversity Action Plans. Where development is permitted, the replacement or retention of important wildlife habitats will be sought through conditions or legal agreement.
- **POLICY AP15 Designated Areas and Habitats** - Proposals for development which may affect a European Site, a proposed European Site or a Ramsar site will be subject to the most rigorous examination (as required by the Conservation Natural Habitats and c Regulations 1994). Development not directly connected with or necessary to the management of the site and which is likely to adversely affect the site (either individually or in combination with other plans or projects) will not be permitted unless the authority is satisfied that:
  a. there is no alternative solution; and

[14] The superseded RSS was formed from RPG6 – East Anglia, RPG9 – South East and the Milton Keynes / South Midlands Sub-Regional Strategy

b. there are imperative reasons of over-riding public interest for the development.

Where a European or proposed European Site or a Ramsar Site hosts a priority natural habitat type and/or priority species, development will not be permitted unless the Authority is satisfied that it is necessary for reasons of human health or public safety or for the beneficial consequences of primary importance for nature conservation[15].

Development which could adversely affect National Nature Reserves and Sites of Special Scientific Interest will not be permitted unless it has been clearly demonstrated that there is an overriding national need for such development in that particular location, and no alternative site is available.

The potentially adverse effect of development on County Wildlife Sites and Local Nature Reserves will be a material planning consideration.

- **POLICY AP17: Trees, Hedgerows and Woodlands -** The retention, improvement and management of existing trees, hedgerows and woodlands will be encouraged for their economic, landscape and ecological value, and historic or conservation interest. Any notification of intention to remove farmland hedgerows will be considered against relevant criteria set out in the appropriate Hedgerow Regulations. Where serious harm to the landscape or wildlife would result from felling, the District Council will, where necessary, impose Tree Preservation Orders. Conditions will be imposed upon planning permissions in appropriate cases, requiring the retention and/or planting of trees and the maintenance of other landscape features. The District Council will carry out planting itself, will support planting by others in conjunction with the Countryside Commission and Forestry Authority, and provide advice on the conservation of the landscape, as resources permit.

Local Plan

The Babergh District Council Local Plan (2003) identifies wildlife corridors as *'important features that should be retained and enhanced, to protect and promote biodiversity and to prevent fragmentation and isolation of species and habitats.'*

Policy CR14 of the Local Plan states that:

> *Development will not be permitted which, directly or indirectly, would have a material adverse impact on species protected by Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981, the Protection of Badgers Act 1992 and The Conservation (Natural*

[15]Priority Natural Habitat types and Priority Species are listed in Annexes I and II of the European and Conservation of natural habitats and of wild fauna and flora Directive of 1992. Priority European habitats could, for example, include saline lagoons, and are shown in the citation for the relevant European Site. Unless the European Commission is of the opinion that there are other imperative reasons of overriding public interest - any such consultation with the Commission must be carried out by the Government. Where development is permitted which adversely affects a European site appropriate compensatory measures will need to be agreed to preserve the overall coherence of the network of sites.

Habitats Etc.) Regulations 1994; or habitats or species targeted in the Suffolk Biodiversity Action Plan.

Policy CR15 of the Local Plan states that:

All development proposals must provide for the protection and, wherever possible, the retention, of existing semi-natural features on the site, including rivers, streams, ponds, marshes, woodlands, hedgerows, trees, features of geological interest, and including wildlife corridors and green wedges.

Policy CR16 of the Local Plan states that:

Development proposals that are acceptable in principle must, wherever approved, include measures to mitigate the effects of the development on features of nature conservation biodiversity interest.

Habitats

In some instances development on sites that have no particular wildlife value can potentially benefit wildlife biodiversity. This can be achieved through habitat creation, or by making other land available for public enjoyment. It can be a simple scheme based on appropriate planting, or a comprehensive scheme including provision for public access. The District Council will seek to identify opportunities for habitat creation when considering development proposals. Particular emphasis will be given to the creation of habitats and the needs of species identified in the Suffolk Biodiversity Action Plan. Policy CR17 of the Local Plan states that:

If development is proposed, the scope for habitat creation for wildlife will be actively sought. If new habitats are created, measures will be put in place to ensure suitable management and if appropriate, public access in perpetuity. The targets included in the Suffolk Biodiversity Action Plan will be taken into account.

Appendix 7

Impact Assessment Methodology

Table 1.1 Valuing Ecological Receptors

International	• Valuable biological features within sites of international importance, i.e. World Heritage Sites, Biosphere Reserves and Biogenetic Reserves. • Designated or qualifying features within a Ramsar site or site of EU importance, i.e. designated or candidate Natura 2000 site (SAC or SPA), or features that qualify an area for such designations. • Internationally significant and viable areas of a habitat type listed in Annex I of the Habitats Directive. • Regularly occurring globally threatened species (i.e. IUCN Red Listed) or species listed on Annex I of the Bonn Convention. • Internationally important populations of a species (e.g. more than 1% of a flyway population of birds). • Nationally significant populations of an internationally important species (i.e. listed on Annex II of the Habitats Directive, or Annex I of the Birds Directive, or with an unfavourable status in Europe). • Regularly occurring populations of internationally important species that are threatened or rare in the UK or of uncertain conservation status.
National	• Designated or qualifying features within nationally designated sites (SSSIs, ASSIs, NNRs, Marine Nature Reserves), or features that meet the published selection criteria for national designation. • Nationally significant and viable areas of UK BAP Priority Habitats identified as requiring site protection (see HAPs). • Nationally important populations of a species (e.g more than 1% of national population for birds). • Significant populations of nationally important species, i.e. listed on Schedules 5 and 8 of the 1981 Wildlife & Countryside Act (as amended) and UK Red Data Book species (excluding scarce species) or, if not a non-Red Data Book species, listed as occurring in 15 or fewer 10 km squares in the UK. • UK BAP Priority Species requiring protection of all nationally important sites. • Any regularly occurring population of a nationally important species that is threatened or rare in the region or county.
Regional (i.e. government regions)	• Regionally significant and viable areas of key habitat identified in a Regional BAP. • Regionally significant and viable areas of key habitat identified as being of regional value in the appropriate English Nature Natural Area. • Regionally important populations of a species. • Significant populations of a regionally important species. • Regularly occurring, locally significant populations of species listed as being nationally scarce (i.e. which occur in 16-100 10 km squares in the UK), or in a Regional BAP or relevant Natural Area on account of their regional rarity or localisation.

County/ Metropolitan	• Designated or qualifying features within Local Nature Reserves or Wildlife Sites, selected on county/metropolitan criteria, or features that meet the published selection criteria for designation. • Semi-natural ancient woodland greater than 0.25 ha in area. • Significant and viable areas of habitat identified in County BAPs as requiring site protection. • Species populations of county/metropolitan importance. • Significant populations of a county/metropolitan important species (i.e. listed in a County/Metropolitan Red Data Book or BAP on account of their regional rarity or localisation).
District/Borough	• Biological features within Local Nature Reserves, etc., selected on District/Borough ecological criteria. • Areas of habitat identified in a sub-County (District/Borough) BAP or in the relevant Natural Area profile, and other features that are scarce within the District/Borough or that appreciably enrich the District/ Borough habitat resource. • Diverse and/or ecologically valuable hedgerow networks. • Semi-natural ancient woodland smaller than 0.25 ha in area. • Species populations of District/Borough importance. • Significant populations of a District/Borough important species (i.e. listed in a local BAP on account of their local rarity or localisation).
Parish/Neighbourhood	Areas of habitat considered to appreciably enrich the habitat resource within the context of the Parish or Neighbourhood, e.g. species-rich hedgerows. Valuable biological features within Local Nature Reserves selected on Parish ecological criteria.

Scale	**Level of Value**
International	Very High
National	High
Regional	Medium
County/ Metropolitan	Medium
District/ Borough	Lower
Parish/ Neighbourhood	Lower

Table 1.2 Definitions of impact magnitude

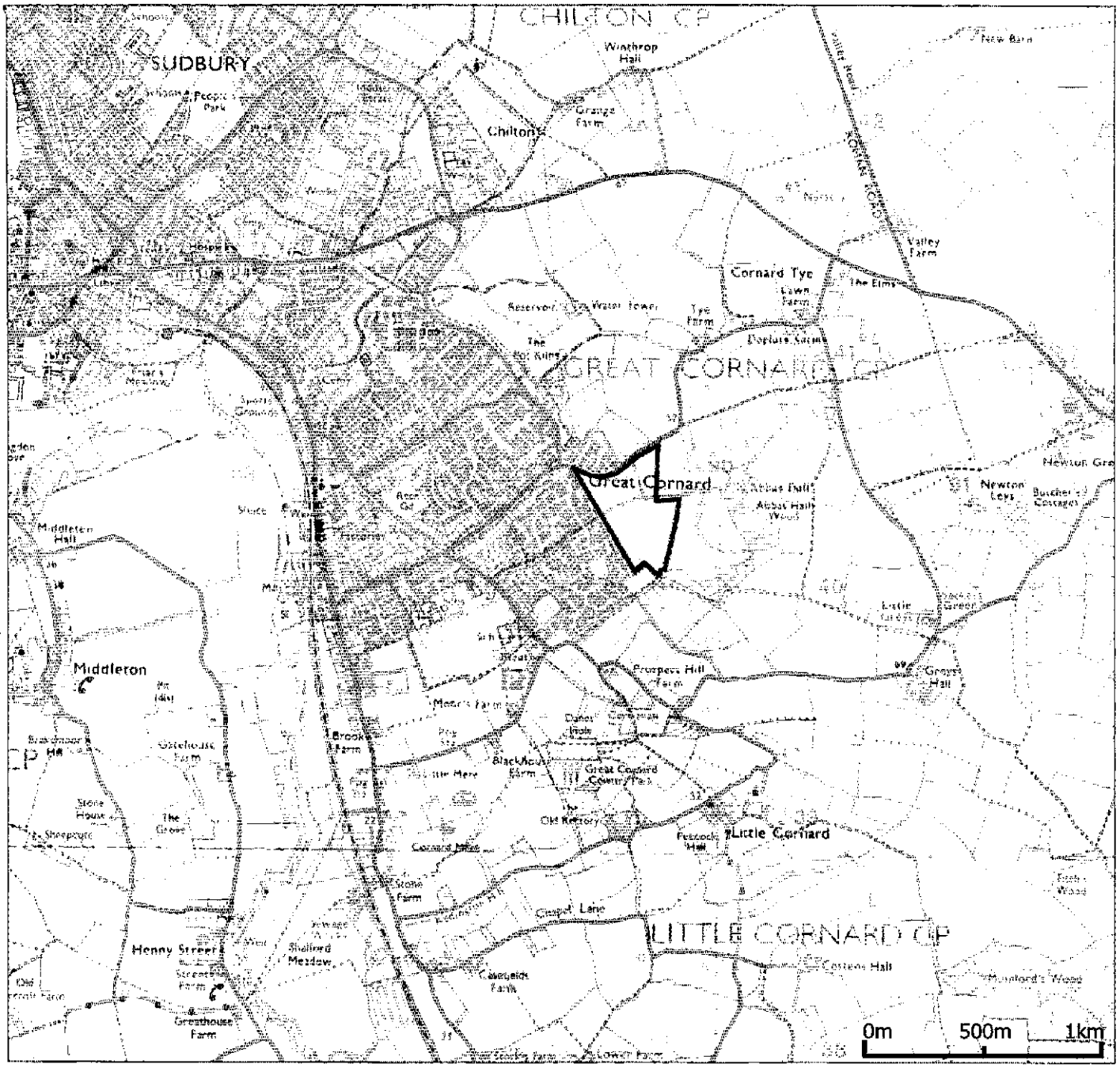
Major	Loss of over 50% of a site feature, habitat or population Adverse change to all of a site feature, habitat or population For benefits, an impact equivalent in nature conservation terms to gain of over 50% of a site feature, habitat or population
Intermediate	Loss affecting 20-50% of a site feature, habitat or population Adverse change to over 50% of a site feature, habitat or population For benefits, an impact equivalent in nature conservation terms to a gain of 20-50% of a site feature, habitat or population
Minor	Loss affecting 5-19% of a site feature, habitat or population Adverse change to 20-50% of a site feature, habitat or population For benefits, an impact equivalent in nature conservation terms to a gain of 5-19% of a site feature, habitat or population
Neutral	Loss affecting up to 5% of a site feature, habitat or population Adverse change to less than 20% of a site feature, habitat or population For benefits, an impact equivalent in nature conservation terms to a gain of up to 5% of a site feature, habitat or population

Table 1.3 Impact significance

	Magnitude of Impact						
Value of Receptor	*Major Negative*	*Inter-mediate Negative*	*Minor Negative*	*Neutral*	*Minor Positive*	*Inter-mediate Positive*	*Major Positive*
International (Very High)	Severe Adverse	Severe Adverse	Major Adverse	Neutral	Major Beneficial	Major Beneficial	Major Beneficial
National (High)	Severe Adverse	Major Adverse	Moderate Adverse	Neutral	Moderate Beneficial	Major Beneficial	Major Beneficial
Regional (Medium)	Major Adverse	Moderate Adverse	Minor Adverse	Neutral	Minor Beneficial	Moderate Beneficial	Major Beneficial
County/ Metropolitan *(Medium)*	Moderate Adverse	Minor Adverse	Minor Adverse	Neutral	Minor Beneficial	Minor Beneficial	Moderate Beneficial
District/ Borough (Lower)	Moderate Adverse	Minor Adverse	Minor Adverse	Neutral	Minor Beneficial	Minor Beneficial	Moderate Beneficial
Parish/ Neighbourhood (Lower)	Minor Adverse	Minor Adverse	Minor Adverse	Neutral	Minor Beneficial	Minor Beneficial	Minor Beneficial
Negligible	Neutral	Neutral	Neutral	Neutral	Minor Beneficial	Minor Beneficial	Minor Beneficial

Part 3: Figures

T:\2002 Projects\02 407 Carsons Drive, Gt Cornard\Drawings\2009 drawings\Figure 01 Location Plan.indd



KEY:

Site location and boundary

L02 407 Carsons Drive, Gt Cornard

Location Plan

Figure 01

Scale 1:25,000

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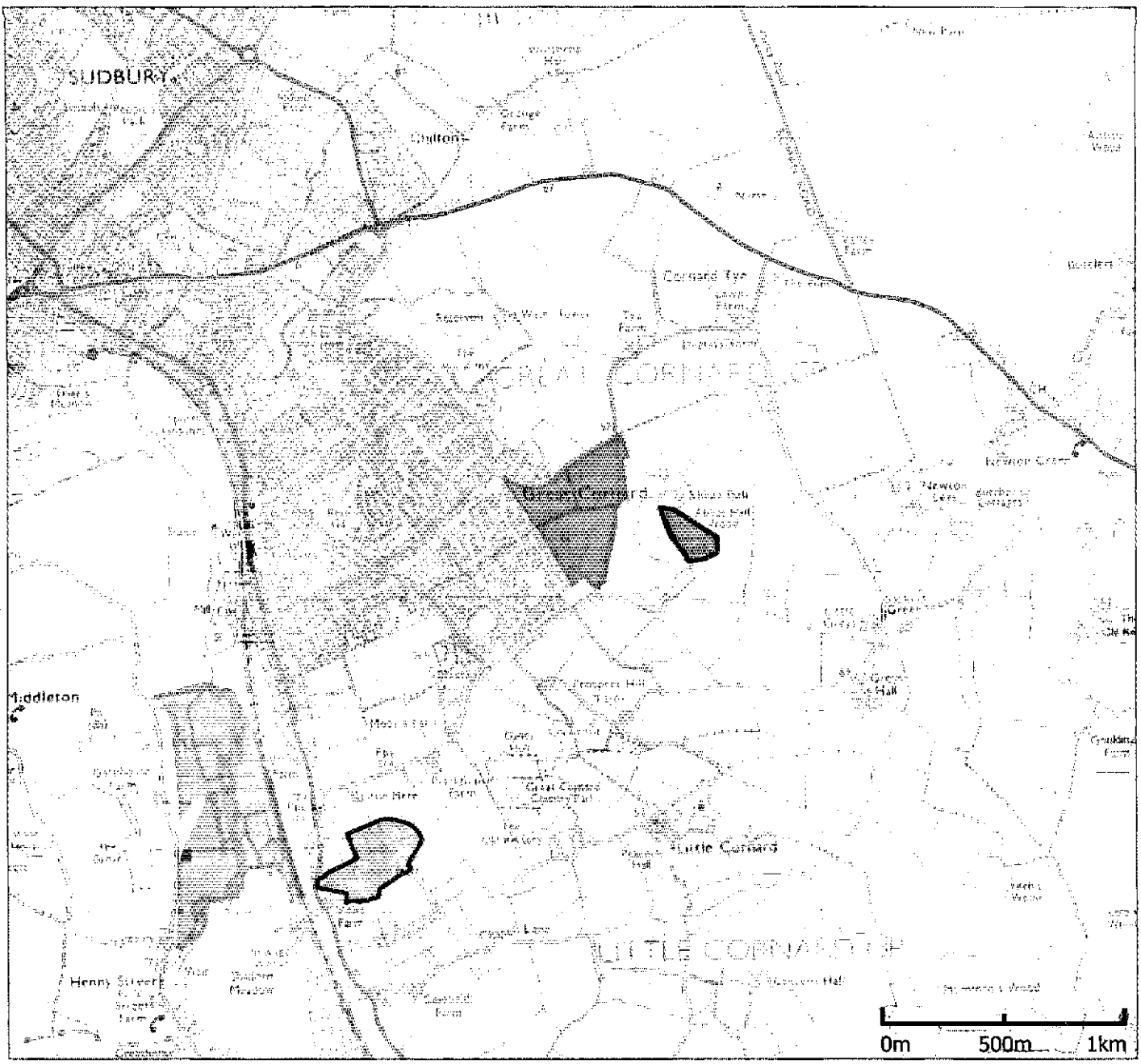
T:\2002 Projects\02 407 Carsons Drive, Gt Cornard\Drawings\2010 drawings\Figure 02 Wildlife sites



KEY:

- Site location and boundary
- Little Cornard Mere SSSI
- Abbas Hall Wood County Wildlife Site
- BAP Floodplane Grazing Marsh
- BAP Reedbed
- BAP Wet Woodland

L02 407 Carsons Drive, Gt Cornard

Location of Wildlife Sites

Figure 02

Scale 1:25,000

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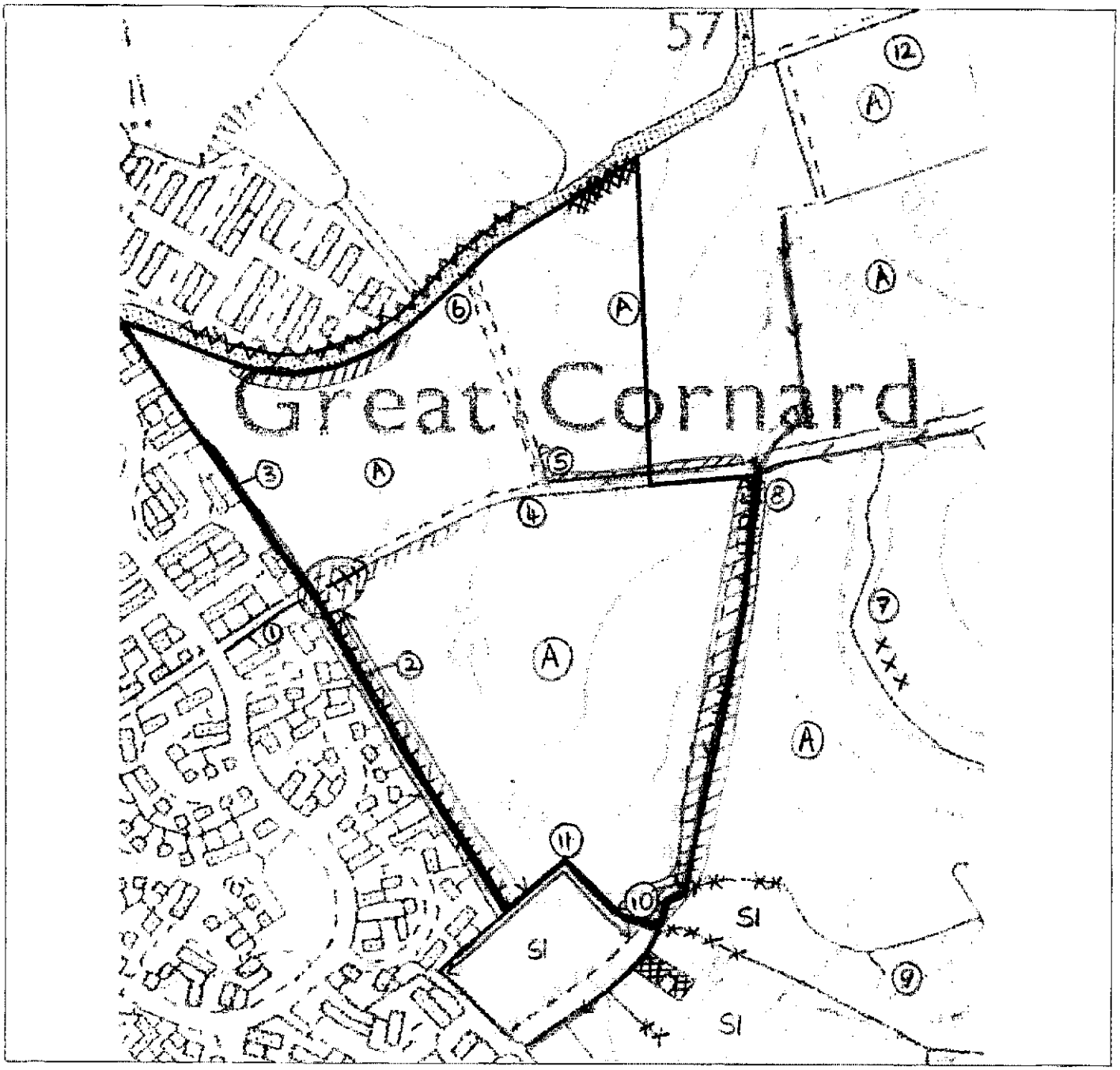
T:\2002 Projects\02 407 Carsons Drive, Gt Cornard\Drawings\2009 drawings\Figure 03 Phase 1.indd



KEY:

- Target note
- Semi-improved neutral grassland
- Species rich hedge
- Species poor hedge
- Species poor hedge with trees
- Dense scrub
- Scattered scrub
- Running water
- Cultivated land (arable)
- Potential reptile habitat
- Potential bat flyways
- Site boundary

L02 407 Carsons Drive, Gt Cornard

Phase 1 Vegetation Survey

Figure 03

NTRS

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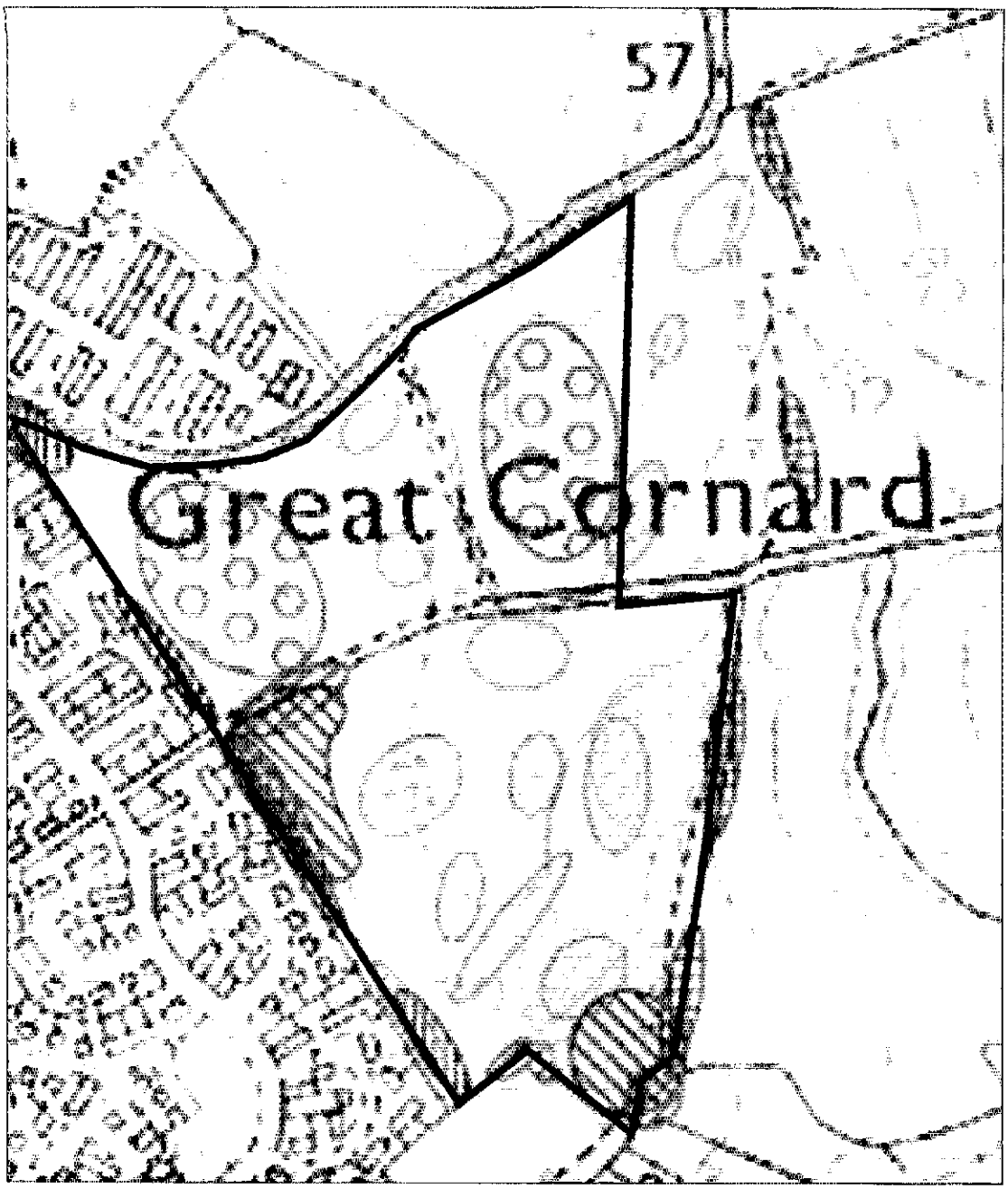
T:\2002 Projects\02 407 Carsons Drive, Gt Cornard\Drawings\2009 drawings\Figure 04 Bird survey.indd



KEY:

- Dunnock
- Green Woodpecker
- Housemartin
- House Sparrow
- Skylark
- Song Thrush
- Starling
- Whitethroat

Please note: territories are indicative

L02 407 Carsons Drive, Gt Cornard

Results of Bird Survey

Figure 04

NTRS

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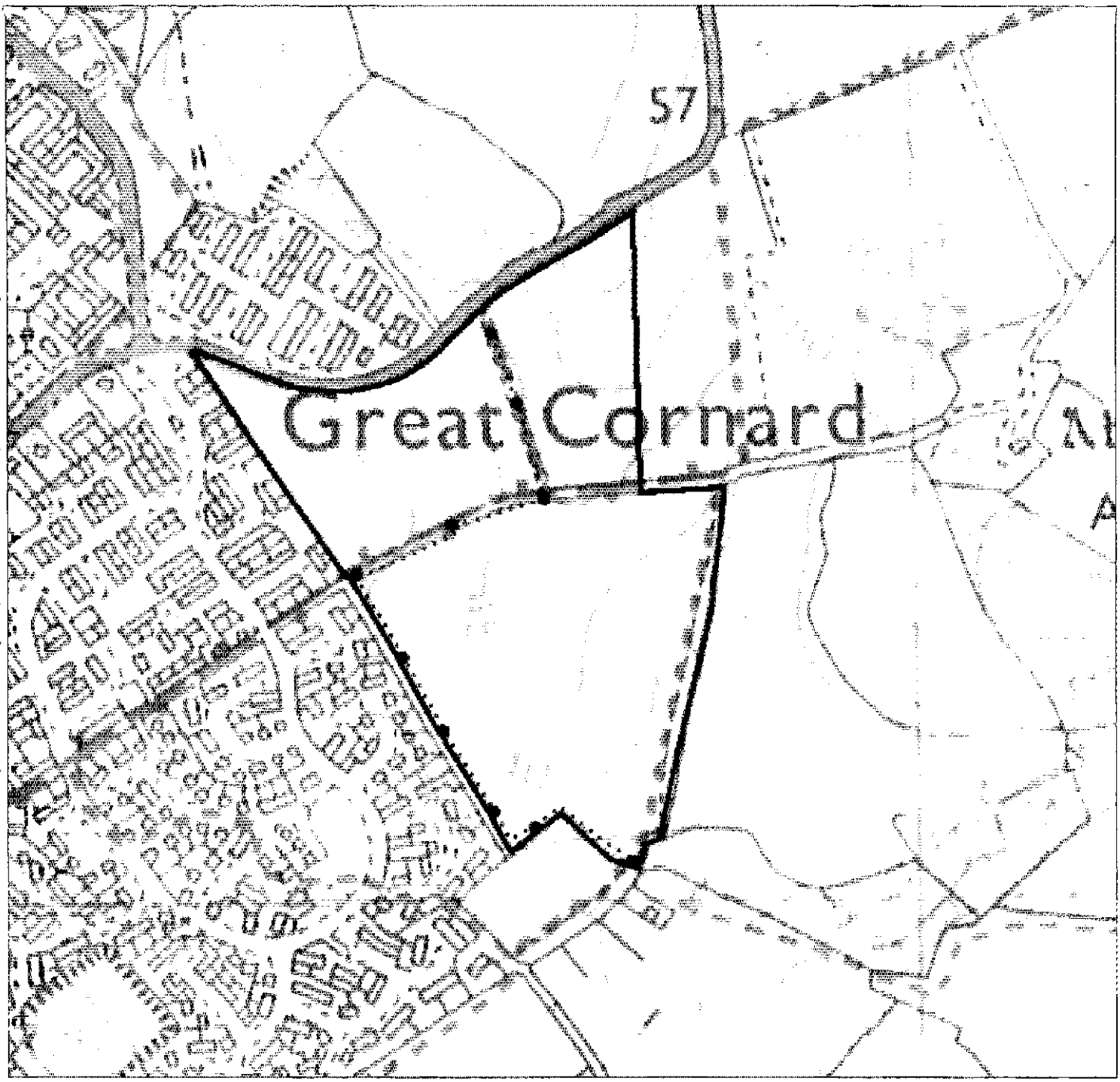
File path: T:\2002 Projects\02 407 Carsons Drive, Gt Cornard\Drawings\2009 drawings\Fig 05a bat surve.indd



KEY:

Site boundary

Static Recording Point

Transect

L02 407 Carson's Drive, Great Cornard

Bat Survey

Figure 05a

Scale: NTRS

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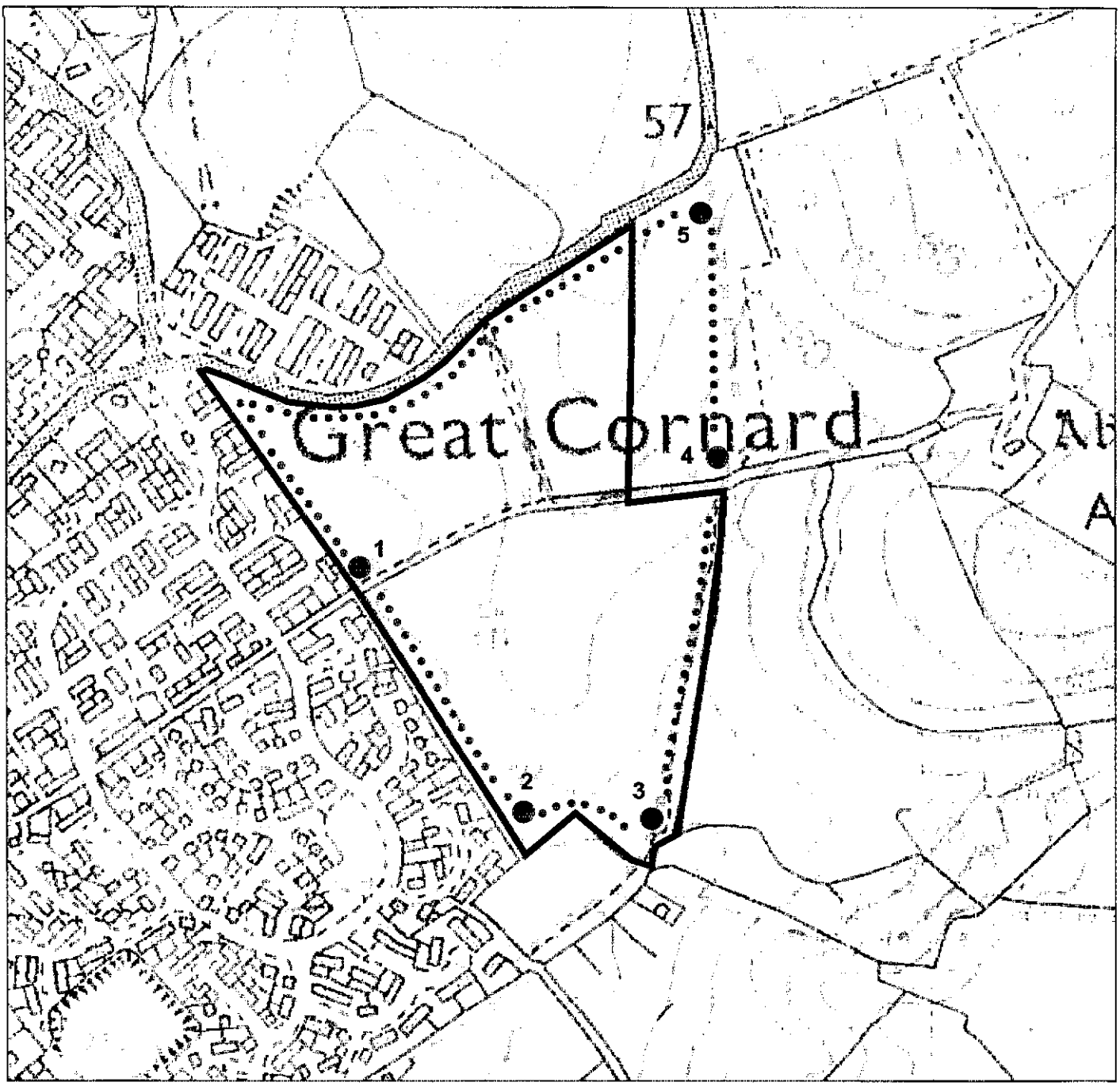
File path: T:\2002 Projects\02 407 Carsons Drive, Gt Cornard\Drawings\2009 drawings\Fig 05b bat survey



KEY:

- Site boundary
- Static Recording Point
- Transect

L02 407 Carson's Drive, Great Cornard

Bat Survey

Figure 05b

Scale: NTRS

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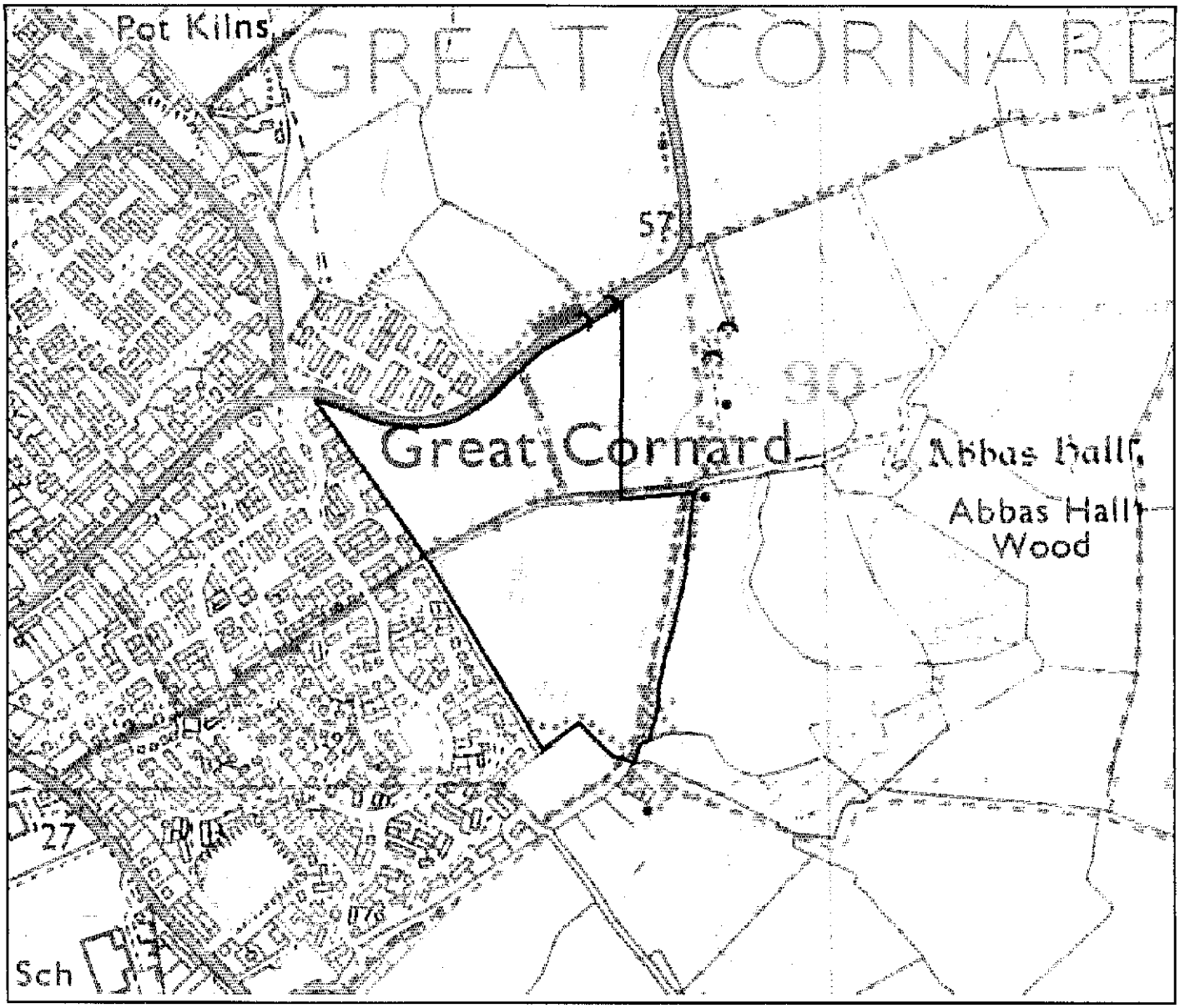
file path T:\2002 Projects\02 407 Carsons Drive, Gt Cornard\Drawings\2009 drawings\Figure 06 Badger survey



KEY:

- Site location and boundary
- Main sett
- Outlier sett
- Potential rest site
- Up and over
- Dung pit
- Snuffle hole
- Badger pathway

Carson's Drive, Great Cornard

Badger survey

Figure 06

Scale: NTRS

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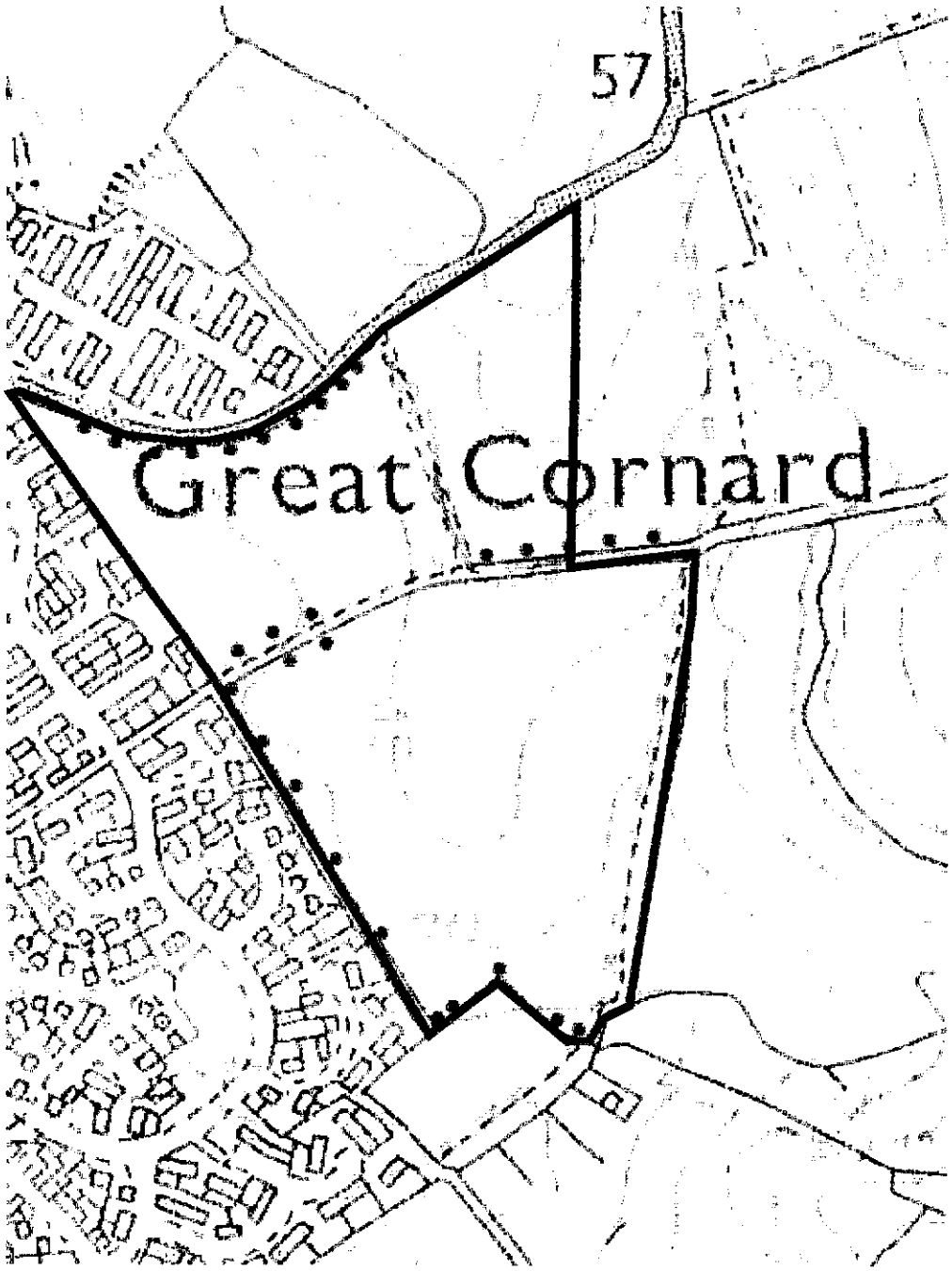
File path: T:\2002 Projects\02 407 Carsons Drive, Gt Cornard\Drawings\2009 drawings\Fig 07 Reptile survey



KEY:

Site boundary

Reptile mat location

L02 407 Carson's Drive, Great Cornard

Reptile survey

Figure 07

Scale: NTRS

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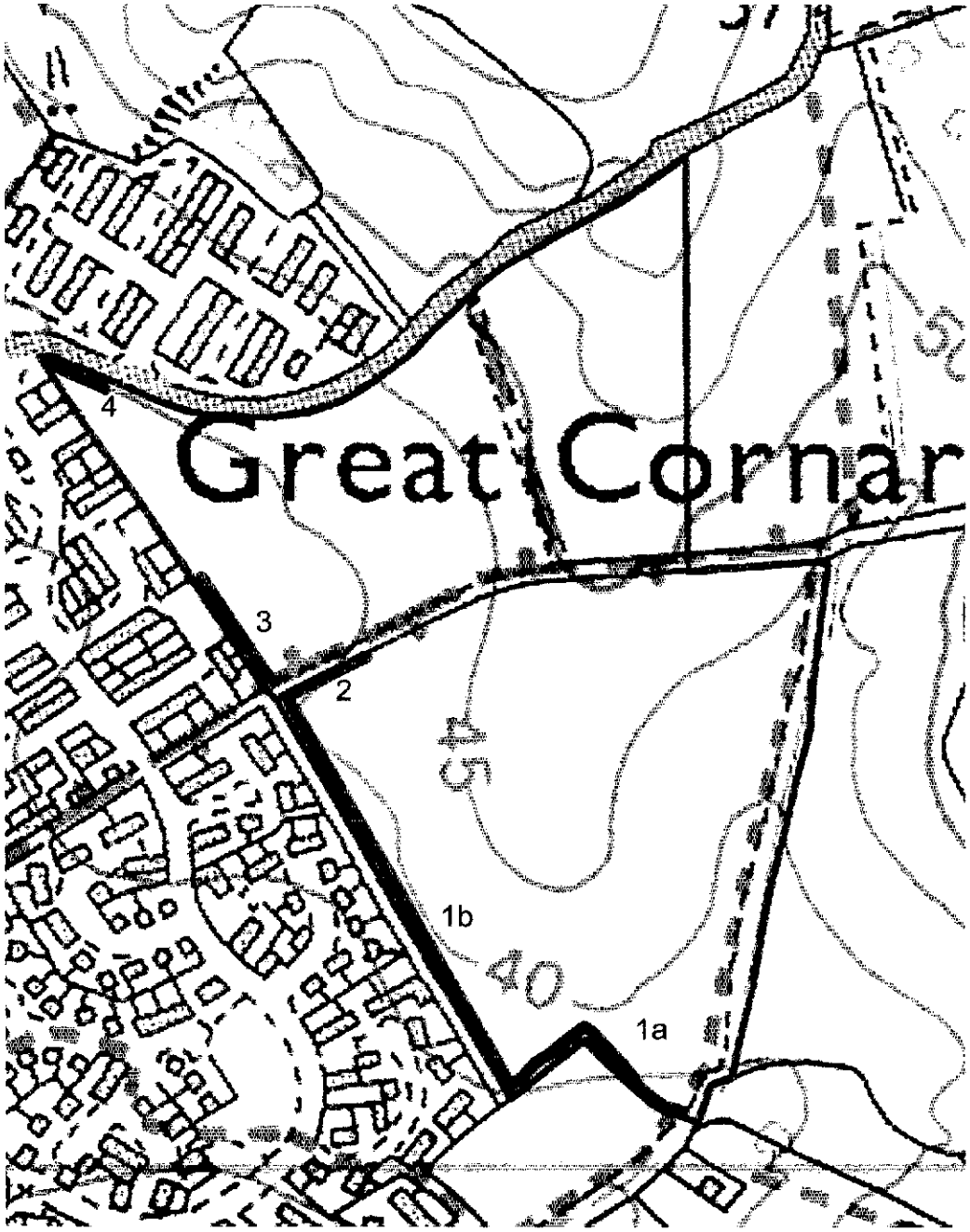
File path: T:\2002 Projects\02 407 Carsons Drive, Gt Cornard\Drawings\2009 drawings\Fig 08 Hedgerow survey.indd



KEY:

Site boundary

Location of Hedgerow

1a Hedgerow number

L02 407 Carson's Drive, Great Cornard

Hedgerow Survey

Figure 08

Scale: NTRS

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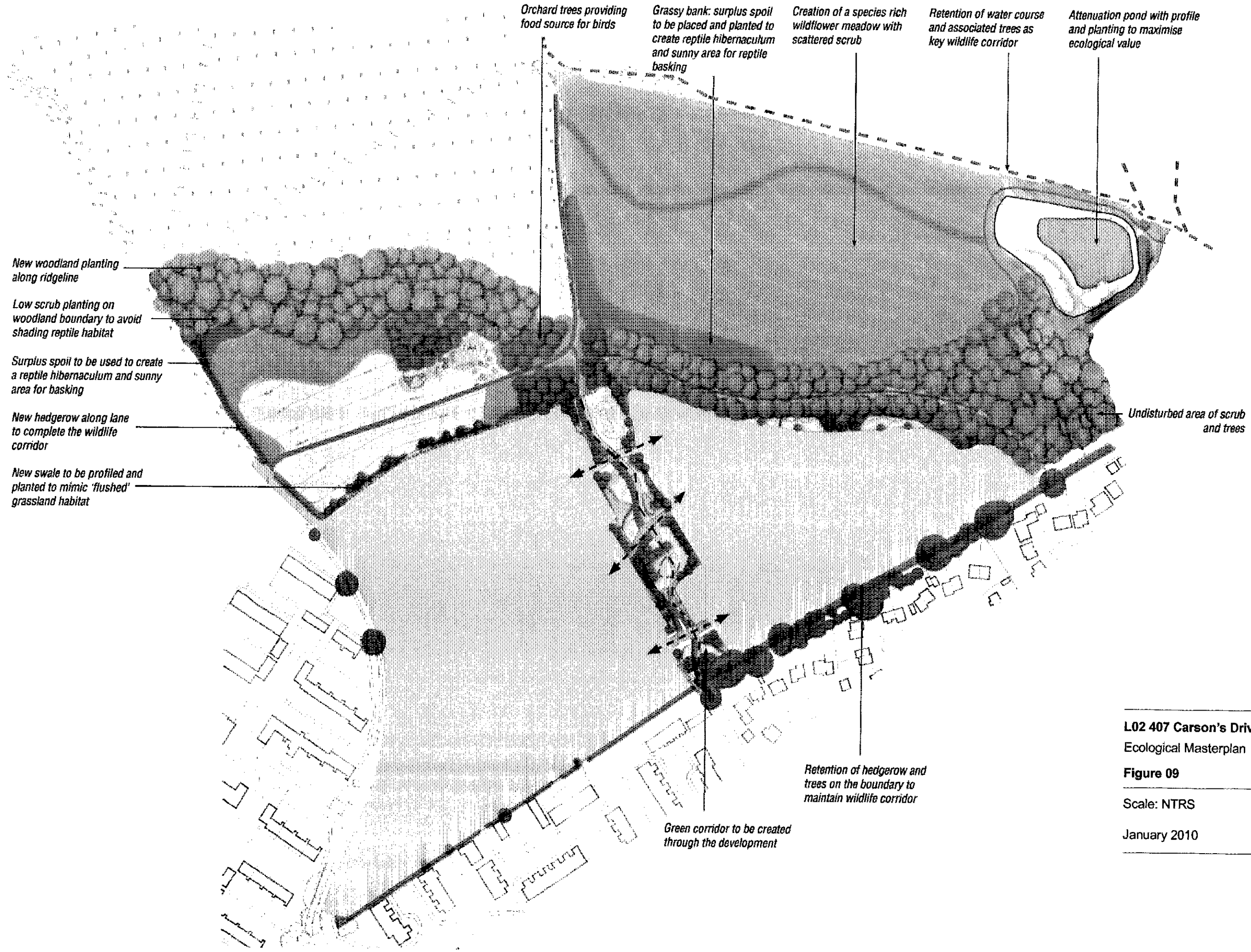

L02 407 Carson's Drive, Great Cornard
Ecological Masterplan

Figure 09

Scale: NTRS

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