



Land off Scratchface Lane, Bedhampton, PO9 3RG

Extended Phase 1 Ecological Assessment

Prepared on behalf of Crayfern Homes

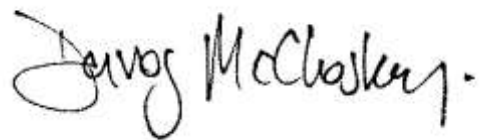
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**Scratchface Lane
Ecology 7050
Issue 01**



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Date: June 2012

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1.0 Executive Summary

- 1.1 Surveyor: Ann Thornton
Survey date: 26.04.12
Grid Reference: SU 69492 06833
Client/contact: Crayfern Homes
Protected Species Found: Slow worm (*Anguis fragilis*). Potential for other reptile species, bats and great crested newts
- 1.2 The client is proposing to demolish two existing properties (Nos. 34 and 36 Brooklands Road, PO9 3NT, grid reference SU 69600 06688) and construct 92No. residential dwellings with associated landscaping and access on land adjacent to Scratchface Lane, Bedhampton. A planning application was refused in June 2011, despite officer recommendation for approval. An appeal was subsequently lodged against the councils decision. Whilst the appeal was dismissed, this was solely on the basis that the legal agreement submitted was inadequate and the appeal inspector found that the scheme was acceptable in all other respects. Due to the time elapsed since the initial Phase 1 Ecological Assessment was undertaken (Hampshire Ecological Services, 2010), a re-survey of the site is required. PV Ecology was commissioned to carry out this survey.
- 1.3 The ecological assessment consisted of 1) a desk study of designated sites of conservation interest and protected and notable species in relation to the site, and 2) an Extended Phase 1 Habitat Survey of the land within the footprint of the proposed development and a buffer zone of 50m outside the site boundary.
- 1.4 The site contains hedgerow habitats with the potential to provide shelter, foraging and nesting for a range of species. The removal of the hedgerows should be avoided where possible. The hedgerows should be protected prior to, during and after the construction phase of the development.
- 1.5 The site contains habitats with the potential to support nesting birds. Vegetation clearance should avoid bird nesting season (01st March to 01st August, inclusive) or not be undertaken without prior inspection by an ecologist.
- 1.6 No evidence of bats was found during an internal inspection of residential dwellings.
- 1.7 An external inspection of the residential properties recorded access points including gaps underneath tiles, gaps at the guttering and holes under the soffits. The surrounding landscape provides ideal habitat for foraging bats. The dwellings were assessed as having 'medium' potential to support roosting bats.
- 1.8 The broad-leaf trees within the site boundary have potential to support roosting bats. In particular, the row of pedunculate oak (*Quercus robur*) trees adjacent to the stream were assessed as having 'low to medium' or 'medium' potential to support roosting bats. A previous ecological report in 2010 recorded bat emerging from one of the trees. None of the trees assessed are due to be removed as part of this development. If the removal of these trees is unavoidable or work is to be carried out on them, prior inspection by an ecologist for roosting bats will be necessary.
- 1.9 The northern field, a grazed horse paddock, has the potential to provide foraging opportunities for bats, particularly serotine (*Eptesicus serotinus*). Habitat within both

fields, including hedgerow, scrub, ruderal vegetation and grassland, provides foraging opportunities for other UK species of bat.

- 1.10 Further survey work is required at the Scratchface Lane site. Phase 2 bat surveys on the existing properties (B1 and B2) should be carried out between April and September. A suite of surveys, comprising dusk emergence and dawn / swarming survey, will enable identification of bat species present and an estimation of population size. This will ensure compliance with European Protected Species legislation in force in the UK.
- 1.11 A suite of transect / activity surveys will also be required to assess bat species' use of the proposed development site. These surveys will involve surveyors walking a pre-determined transect route across both fields to record bat activity throughout the site. If bats are found to be foraging on site then suitable open spaces will need to be retained on site or suitable landscaping in place to mitigate for the loss of the foraging habitat. The hedgerows will have to be retained and protected during the construction phase to ensure no flight lines and wildlife corridors are interrupted.
- 1.12 A water-body was recorded at the north-eastern corner of the northern field which has potential to support breeding great crested newts (*Triturus cristatus*). Terrestrial habitat within the development boundary could also provide shelter and foraging opportunities for newts. Further surveys are required to determine the presence / likely absence of great crested newts and provide indication of population. These surveys will enable assessment to be made regarding suitable mitigation (if required) and determine the need for a licence from Natural England to ensure compliance with European Protected Species Legislation in force in the UK.
- 1.13 The site contains habitat and features suitable for reptiles. These include areas of scrub with hedgerows forming the northern and western boundaries of the northern field. Scrub, tussocky grass and ruderal vegetation was present around all boundaries of the southern field. Compost heaps, brash piles, log piles and rubble were recorded within the site boundary. A number of slow worms were recorded under existing refugia within the northern and southern fields. Further surveys are required to determine the population of slow worms within the site and determine the presence / likely absence of other reptile species and advise on mitigation measures to ensure compliance with current UK legislation.
- 1.14 The report provides an assessment of the potential ecological impacts of the proposed development (Section 6.0) and details mitigation measures to be implemented prior to and during construction (Section 7.0). Mitigation measures include; a) further measures required to mitigate against the effects of the development, and b) further measures recommended to mitigate against the effects of the proposed development.

2.0 Introduction

Background

- 2.1 PV Ecology was commissioned on 24th April 2012 to carry out an Extended Phase 1 Ecological Assessment Survey of the land within the footprint of the proposed development at Scratchface Lane, Bedhampton, (grid reference SU 69492 06833). A refusal of planning permission was issued on 22 June 2011 and a re-submission is required. Due to the time elapsed since the initial Phase 1 Ecological Assessment was undertaken (Hampshire Ecological Services, 2010), a re-survey of the site is required. The client is proposing to demolish two existing properties (Nos. 34 and 36 Brooklands Road, PO9 3NT, grid reference SU 69600 06688) and construct 92No. residential dwellings with associated landscaping and access on land adjacent to Scratchface Lane, Bedhampton.
- 2.2 The results set out within this Phase 1 report are valid for one year from the issue date.
- 2.3 This report describes the current ecological baseline of the site, based on the findings of an Extended Phase 1 Habitat Survey and review of existing data.
- 2.4 The methods employed to obtain ecological information on the site are described in **Section 3.0** of this report and the results are detailed in **Sections 4.0** and **5.0**. **Section 6.0** identifies the potential impact on biodiversity receptors and **Section 7.0** describes the recommendations for further ecological survey work and the recommended environmental measures which should be incorporated into the scheme design to minimise potential effects on biodiversity receptors.

Site Description

- 2.5 The site is located on a 3.7ha plot of land, which contains the existing residential dwellings at 34 and 36 Brooklands Road, and two fields. Grid reference at the centre is SU 69492 06833 (**Appendix A**). The site is within a residential development with properties lying to the east of the development site. A woodland SINCR is present to the north of the development and the western boundary is adjacent to a woodland bank leading to the main A3(M). The southern boundary of the development site tapers to a narrow point adjacent to the main A3(M).
- 2.6 The land within the proposed development site consists of short-sward grazed improved grassland, poor semi-improved grassland, hedgerows, scrub, ruderal vegetation, scattered broad-leaf and coniferous trees, a pond, a stream, a small shed and two brick-built residential properties.

Brief

- 2.7 To carry out an Extended Phase 1 Ecological Assessment of the land within the footprint of the proposed development at land off Scratchface Lane and to inform the clients of any ecological implications associated with the site. To carry out a Phase 1 bat inspection of buildings affected by the proposed development and to inform the clients of any further survey work required.

3.0 Methodologies

Desk Study

- 3.1 The desk study methodology is based upon guidelines set out by the Institute of Environmental Assessment (IEA, 1995) and the Institute of Environmental and Ecological Management (IEEM, 2012). A data-gathering exercise was undertaken to obtain any available information relating to statutory and non-statutory nature conservation sites, priority habitats and species, and legally protected and controlled species using a range of sources (**Table 3.1**).
- 3.2 Given the potential for the scheme to affect biodiversity resources located off- as well as on-site, data was requested for:
- statutory sites of nature conservation interest located on or within 2km of the site;
 - non-statutory sites of nature conservation interest located on or within 2km of the site;
 - Biodiversity Action Plan Habitats located on or within 2km of the site; and
 - Data obtained HBIC for the site were used to provide records of priority legally protected and controlled species to a distance of 2km from the site boundary.

Table 3.1: Summary of information sources used for the Desk Study

Organisation / Source	Information Sought
Hampshire Biodiversity Information Centre (HBIC)	Location and details of statutory and non-statutory (locally designated) wildlife sites, UK Biodiversity Action Plan Priority Habitats and records of protected and/or notable species within 2km of Scratchface Lane.
Natural England	Locations of, and citations for, any SSSI, SAC, SPA or Ramsar sites within 2km of the site
MAGIC	Locations of all statutory wildlife sites and areas of ancient woodland within 2km of the site
Ordnance Survey Maps	Large scale habitat information and identification of off-site habitats which may require consideration (such as ponds)
Local Biodiversity Action Plan (LBAP)	Listings of LBAP species and habitats

Extended Phase 1 Habitat Survey

- 3.3 The site was visited on the 26th April 2012. The survey employed techniques based on standard Phase 1 Habitat Survey methods (JNCC, 2006). Habitat types on and adjacent to the site were identified according to standard habitat definitions and mapped at an appropriate scale using standard colour codes and/or acronyms (**Appendix B**).

- 3.4 The collection of botanical information focused on the dominant and/ or key indicator species for each habitat, to allow allocation of habitats to the standard Phase 1 habitat types and where relevant to identify any LBAP habitats which are present on site. Any habitats identified as having potentially high botanical value will be subject to further botanical surveys, if deemed necessary.
- 3.5 The Phase 1 Habitat survey methodology was 'extended' in accordance with EIA guidelines (EIA, 1995) to include an assessment of the potential for habitats on or immediately adjacent to the site to support legally protected or conservation-notable species. The location and nature of any signs of the presence of protected species (such as droppings, footprints, burrows, etc.) were documented and mapped accordingly. Indicative methods for protected species are outlined below.

Bats

- 3.6 Extant buildings and trees were inspected for potential roosting areas that could support bats. The on-site buildings were searched externally for evidence of bats and evaluated for their potential to support bat roosts. Particular attention was paid to the following:

Trees

- Mature trees with ivy covering and/or crevices and peeling bark

Outside of buildings

- Stone crevices or cracks in brickwork, gaps between roofing materials and the main building structure, ground outside any potential access points.

Inside of buildings

- Floors, on and between any ridge beams or other parts of roof timbers that are deemed accessible to bats, within crevices of stonework and under tiles (where accessible).

Evidence searched for to indicate usage of bats included:

- Droppings
- Urine staining
- Worn entrances or claw marks around potential access points
- Insect feeding remains
- Oil staining left from bat fur
- Live/dead bats

Birds

- 3.7 Any habitat features, for example, scrub, trees and buildings which could potentially be used by nesting birds, were surveyed and any nesting activity was noted. The habitat was also assessed regarding its potential for bird activity.

Reptiles

- 3.8 Habitat features that could be suitable as hibernacula, foraging or basking areas were noted. Extant refugia were lifted and examined for evidence of reptiles, including sloughs (shed skins).

Badgers

- 3.9 Any area that could be used for foraging or could potentially contain a Badger sett was surveyed and any signs noted including:
- Evidence of active or disused setts
 - Evidence of potential badger diggings
 - Latrines / dung pits
 - Evidence of badger foraging ('snuffle holes')
 - Footprints
 - Badger hairs

Great Crested Newts

- 3.10 Water-bodies within the site boundary and ponds within the vicinity of the site were noted and the potential of the land to act as a commuting route, shelter or foraging resource for great crested newts was assessed.

Otters and Water Voles

- 3.11 Any riparian habitat present on-site or immediately adjacent to the site was searched for signs of otters and water voles. Signs included:
- Otter spraints or sign heaps
 - Water vole latrines and feeding stations
 - Evidence of potential holts or burrows
 - Footprints

Dormice

- 3.12 The suitability of the habitat was assessed for dormice. Any small mammal feeding signs were checked and assessed, including:
- Examination of hazel nuts
 - Evidence of nest building

4.0 Results

Desk Study

Statutory Nature Conservation Sites

- 4.1 The Chichester and Langstone Harbour Special Protected Area (SPA) / Special Area of Conservation (SAC) lies 1.2km south of the proposed development.
- 4.2 Langstone Harbour Site of Special Scientific Interest (SSSI) lies 1.2km to the south of the proposed development.
- 4.3 Farlington Marshes Local Nature Reserve (LNR) lies approximately 1.4km south-west of the site boundary.

Non-statutory Nature Conservation Sites

- 4.4 The closest non-statutory site of wildlife designation, Littlepark Wood (East) SINC, lies adjacent to the northern boundary of the northern field. The SINC is 5.87ha and designated as 1A / 1C(ii)

1A Ancient¹ semi-natural² woodlands.

1C Other semi-natural woodland if;

(ii) they comprise important community types of restricted distribution in the County, such as yew woods and alder swamp woods

- 4.5 The statutory site search via DEFRA website, MAGIC, is displayed in **Appendix E**. The non-statutory site data from HBIC is displayed in **Appendix F** with full details of SINCs recorded within 2km available on request.
- 4.6 The results of the desk study revealed there are three ponds / water-bodies within 1km of the site, (**Table 4.1** below).

Table 4.1: Ponds/water-bodies within 1km of the site

Pond Number	Pond Location	Distance from Site Boundary	Comments / Description
1	SU 69521 06947	Within the site boundary at the north-eastern corner.	Water-body within the development site.
2	SU 68784 06547	600m west of the western site boundary.	Small pond situated within a golf course and to the west of the A3(M)
3	SU 69504 07230	245m north of the site boundary	Small pond on private land within Littlepark Wood SINC.

Biodiversity Action Plan (BAP) Priority Habitats

- 4.7 The data search revealed four BAP Priority Habitats present on site or within 500m of the site:

- Ancient and semi-natural woodland
- Ancient planted woodland
- Deciduous woodland
- Pond

Protected and Notable Species

- 4.8 A list of the protected and notable species which have been recorded within 2km of the site was obtained from HBIC. Key species records are summarised here. A comprehensive list of records returned by the data search is available on request.

Badgers

- 4.9 The desk study revealed three records of badger (*Meles meles*) within 2km of the proposed development site dated 2005 and 2009.

Bats

- 4.1 Records were returned from HBIC for seven species of bat including common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), whiskered (*Myotis mystacinus*, *Myotis* sp., noctule (*Nyctalus noctula*) and brown long-eared (*Plecotus auritus*). In addition, a large (21) number of serotine bats (*Eptesicus serotinus*) were recorded at a single location in 2010.

Birds

- 4.2 A total of 141 species of protected and notable birds were recorded within 2km. These include skylark (*Alauda arvensis*), fieldfare (*Turdus pilaris*), house sparrow (*Passer domesticus* and Eurasian tree sparrow (*Passer montanus*) – (both of which are on the BOCC Red list) and barn owl (*Tyto alba*).

Dormice

- 4.3 Thirty records for dormouse (*Muscardinus avellanarius*), dated 2007 - 2009, were returned from within 2km of the proposed development. These records were from a single site situated approximately 500m west of the boundary, across the A3(M).

Great Crested Newts

- 4.4 The data search returned no records of great crested newt (*Triturus cristatus*) within 2km of the site.

Otters and Water Voles

- 4.5 Three records for water vole (*Arvicola amphibius*), dated 2000, was returned within 2km of the site. These were recorded 1.95km south of the proposed development.

Plants

- 4.6 Fifty species of protected and notable plant species were recorded within 2km. These include fly orchid (*Ophrys insectifera*) – a UK BAP species.

Reptiles

- 4.7 Records for slow worm (*Anguis fragilis*), grass snake (*Natrix natrix*), adder (*Vipera berus*) and common lizard (*Zootoca vivipara*) were returned within 2km of the site.

Other Species (including amphibians, invertebrates, mammals)

- 4.8 A total of 24 records for stag beetle (*Lucanus cervus*) were returned from within 2km of the proposed development. These were dated 1998 – 2007. The closest record was from 1km west of the proposed development boundary. The data search returned four records for hedgehog (*Erinaceus europaeus*) (a UK BAP species), dated 1998 -2008. Records were returned for common toad (*Bufo bufo*) from within 2km of the site with one record within 0.9km of the site. Common toad is a UK BAP species. A total of 121 records for protected and notable moths and butterflies (*Lepidoptera* sp.) were recorded within 2km of the site. Species included the cinnabar moth (*Tyria jacobaeae*).
- 4.9 None of the records returned from the data search are believed to have occurred within the site itself or on land immediately adjacent to the site.

Extended Phase 1 Habitat Survey

Introduction

- 4.10 The survey was carried out on 26th April 2012 by a consultant ecologist under clear, dry and sunny weather conditions.
- 4.11 The results of the Extended Phase 1 Habitat Survey are presented in the Sections below. An illustrated and annotated Extended Phase 1 Habitat Survey Map is presented in **Appendix B**. The map illustrates the location and extent of all habitat types recorded on site, along with additional notable features or details depicted with target notes. A corresponding list of target notes to accompany the Extended Phase 1 Habitat Survey Map is provided in **Appendix C**.

Site Constraints

- 4.12 The Phase 1 survey was carried out in April. Ideally, botanical surveys should be carried out May – August, however the site contained sufficient indicator species to enable assessment to be made. Vegetative keys were used to identify species not in flower.
- 4.13 Loft insulation was present throughout the attic at No. 34 Brooklands Road (B1). This prevented extensive examination of the floor beams for older bat droppings. The insulation also prevented detailed visual inspection of the soffit area for possible access points.
- 4.14 It was not possible to closely inspect suitable features on the mature trees. Possible roosting features were examined using close focusing binoculars.

Habitats

4.15 Habitats recorded within the site boundary comprised:

- Short-sward, grazed, improved grassland;
- Poor semi-improved grassland;
- Species-poor hedgerow;
- Scrub;
- Ruderal vegetation
- Scattered mature and semi-mature broad-leaved and coniferous trees;
- Single storey, brick built residential properties with attic;
- Amenity grassland (lawn); and
- Hard standing

Each of the habitat types is described in detail below.

Short-sward, grazed, improved grassland

- 4.16 The predominant habitat type within the northern field development boundary comprised short-sward, grazed, improved grassland. The grassland was dominated by perennial rye-grass (*Lolium perenne*) with white clover (*Trifolium repens*), cock's-foot (*Dactylis glomerata*), false oat-grass (*Arrhenathurum elatius*), Yorkshire fog (*Holcus lanatus*), common bent (*Agrostis tenuis*), yarrow (*Achillea millefolium*), ribwort plantain (*Plantago lanceolata*), common ragwort (*Senecio jacobaea*), creeping buttercup (*Ranunculus repens*), common mouse-ear (*Cerastium fontanum*) and daisy (*Bellis perennis*) also present.

Poor semi-improved grassland

- 4.17 The southern field comprised a large area of poor semi-improved grassland. The longer sward was tussocky in places and becoming colonised by ranker species. Species recorded included perennial rye grass (*Lolium perenne*) red fescue (*Festuca rubra*), Yorkshire fog (*Holcus lanatus*), cock's-foot (*Dactylis glomerata*), false oat-grass (*Arrhenathurum elatius*), meadow fox-tail (*Alopecurus pratensis*), white clover (*Trifolium repens*), red clover (*Trifolium pretense*), white dead-nettle (*Lamium album*), ribwort plantain (*Plantago lanceolata*), germander speedwell (*Veronica chamaedrys*), bristly oxtongue (*Picris echioides*) and creeping buttercup (*Ranunculus repens*).

Species-poor hedgerow

- 4.18 The northern and part of the western boundary of the site comprised species-poor hedgerow. The hedgerow predominantly consisted of hawthorn (*Crataegus monogyna*) with bramble (*Rubus fruticosus*) also present. The understory was species and structurally poor with cleavers (*Galium aparine*), nettle (*Urtica dioica*), wood-avens (*Geum urbanum*) and lords-and-ladies (*Arum maculatum*) recorded.

4.19 Ruderal vegetation

Ruderal vegetation was present within the southern field. Species recorded included false oat-grass, cock's-foot, butterfly-bush (*Buddleja davidii*), garlic mustard (*Alliaria petiolata*), thale cress (*Arabidopsis thaliana*), Canadian fleabane (*Conyza canadensis*), wild teasel (*Dipsacus fullonum*), field forget-me-not (*Myosotis scorpioides*), lesser burdock (*Arctium minus*) and wood spurge (*Euphorbia amygdaloides*).

Scrub

- 4.20 Large areas within the development boundary comprised dense scrub. This habitat was dominated by bramble with hogweed (*Heracleum sphondylium*), nettle, cleavers and broad-leaved dock (*Rumex obtusifolius*) were also recorded.

Woodland bank

- 4.21 An area of woodland was present immediately adjacent to the western boundary of the site. This woodland provided a buffer between the development site and the main A3(M). Species recorded within the woodland included yew (*Taxus baccata*), pedunculate oak (*Quercus robur*), holly (*Ilex aquifolium*), field maple (*Acer campestre*), hawthorn (*Crataegus monogyna*) and ash (*Fraxinus excelsior*). Understory vegetation comprised cleavers (*Galium aparine*), hedge woundwort (*Stachys sylvatica*), primrose (*Primula vulgaris*), ivy (*Hedera helix*) and field horsetail (*Equisetum arvense*).

Scattered mature and semi-mature broad-leaf and coniferous trees

- 4.22 A number of scattered trees were recorded within the development site boundary. Four mature pedunculate oak trees (*Quercus robur*) were recorded along the stream. These are depicted on the Extended Phase 1 Habitat Map in **Appendix B** and described in target notes T.1 – T.4 in **Appendix C.** A group of Corsican pine (*Pinus nigra* ssp. *laricio*) was present on the eastern boundary of the southern field. A number of sycamore (*Acer pseudoplatanus*) were present within the scrub on the western boundary of the southern field. These are depicted on the Extended Phase 1 Habitat Map in **Appendix B** and described in target notes in **Appendix C.** Other trees recorded included hawthorn (*Crataegus monogyna*), ash (*Fraxinus excelsior*), bay (*Laurus nobilis*) and elder (*Sambucus nigra*) these are depicted on the Extended Phase 1 Habitat Map in **Appendix B.**

Stream

- 4.23 The northern and southern fields are bisected by a small stream. This is approximately 2m wide with an average water depth of <10cm at the time of survey. The banks were steep and heavily poached by horses on the northern side. The southern bank is deeply shaded by scrub and scattered trees. The northern bank is shaded by oak trees. The location of the stream is depicted on the Extended Phase 1 Habitat Map in **Appendix B.**

Single storey brick built residential properties with attic (B1)

- 4.24 The residential properties known as 34 and 36 Brooklands Road (depicted as B1 on the Extended Phase 1 Habitat Map in **Appendix B**) are single-storey dwellings with attics

consisting of brick built structures with pitched clay tile roof and clay ridge. The main ridge runs north-east to south-west. A large chimney stack with lead flashing was present in the centre of the roof with a smaller chimney located to the north-eastern aspect of No. 34. A brick-built outhouse structure with corrugated plastic flat roof was present to the rear of No. 34.

- 4.25 Gaps were recorded under the guttering. A number of raised tiles were present and gaps were recorded. A hole was present at the guttering.

Amenity grassland (lawn)

- 4.26 The rear gardens of Nos. 34 and 36 Brooklands Road comprised amenity grassland. The area was species poor and dominated by perennial rye-grass (*Lolium perenne*) with creeping buttercup (*Ranunculus repens*) and yarrow (*Achillea millefolium*) also recorded.

Hard standing

- 4.27 Areas of hard standing were recorded to the front of both 34 and 36 Brooklands Road. These were utilised as driveways.

Protected or notable species

Badgers

- 4.28 None

Bats

- 4.29 No evidence of bats was recorded during the internal or external inspection of the residential properties.
- 4.30 However, suitable roosting features were present within each residential dwelling. The attics were trussed with thick insulation present within the attic of No. 34. The attic of No. 36 is currently used as a clothes storage area with rope strung between rafters as a make-shift hanging space. Both attics were lined with bituminous roofing felt with gaps visible between the felt and tiles. Crevices were recorded along the internal ridge and daylight was visible at a number of points along the eaves.
- 4.31 Four mature oak trees (depicted as T1 – T4 on the Extended Phase 1 Habitat Map in **Appendix B**) were assessed for their potential to support roosting bats. One tree was highlighted as having medium potential and the other three assessed as having low to medium potential to support bats. None of the trees assessed are due to be removed as part of this development. If the removal of these trees is unavoidable, prior inspection by an ecologist for roosting bats will be necessary.
- 4.32 Habitat within the proposed development and immediately adjacent provides foraging opportunities for bats. These include the woodland buffer between the site and the A3(M) at the western boundary, woodland SINC to the north and large areas of scrub particularly within the southern field.

Birds

- 4.33 The following bird species were noted during the field survey; dunnock (*Prunella modularis*) and blackbird (*Turdus merula*). A dunnock (*Prunella modularis*) was recorded during the survey within the scrub area to the north-west of the northern field.

Dormice

- 4.34 None, although the habitat outside the boundary is more suitable, including the SINC to the north.

Great crested newts

- 4.35 The site contains a water-body which was assessed as being of 'poor' suitability to support great crested newts.

Table 5.1 Habitat Suitability Assessment of Water-bodies within 500m of the Site.

Pond Number	HSI $(SI_1 \times SI_2 \times SI_3 \times SI_4 \times SI_5 \times SI_6 \times SI_7 \times SI_8 \times SI_9 \times SI_{10})^{1/10}$	Comments / Description
pond	$(1.0 \times 0.6 \times 0.1 \times 0.33 \times 1.0 \times 1.0 \times 1.0 \times 0.45 \times 0.33 \times 0.3)^{1/10} = 0.49494$ HSI = 0.49494 (Poor)	Water-body located within grazed improved grassland with no macrophytes, invertebrates or suitable adjacent terrestrial vegetation.

Otters and water voles

- 4.36 None

Plants

- 4.37 None

Reptiles

- 4.38 Three adult, one sub-adult and one juvenile slow worm (*Anguis fragilis*) were observed during the survey.

Other species (including amphibians, invertebrates and mammals)

- 4.39 No protected species of invertebrate, amphibian or mammal were observed on site during the survey.

5.0 Analysis and Impact Assessment

Nature Conservation Sites

UK Statutory Sites of Conservation Interest

- 5.1 A search of Magic website revealed three Statutory Sites within 2km of the proposed development. The Chichester and Langstone Harbour Special Protected Area (SPA) / Special Area of Conservation (SAC) lies 1.2km south of the proposed development.
- 5.2 Langstone Harbour Site of Special Scientific Interest (SSSI) lies 1.2km to the south of the proposed development.
- 5.3 Farlington Marshes Local Nature Reserve (LNR) lies approximately 1.4km south-west of the site boundary.
- 5.4 Given the distance from the proposed development site, the direct impact on statutory sites is deemed to be 'low'.

Non-Statutory Sites of Conservation Interest

- 5.5 The closest non-statutory site of wildlife designation, Littlepark Wood (East) SINC, lies adjacent to the northern boundary of the northern field. The SINC 5.87ha and designated as 1A / 1C(ii)

1A Ancient¹ semi-natural² woodlands.

1C Other semi-natural woodland if;

(ii) they comprise important community types of restricted distribution in the County, such as yew woods and alder swamp woods

- 5.6 There is unlikely to be a direct impact from the development on the SINC as the site is separated by a path and it also is fenced. Appropriate signage for construction workers should be in place during the development phase to ensure no activities that would damage the SINC take place, these would include dumping of materials or damage through tracking onto or near the site. Appropriate fencing would further reduce any direct impacts during the construction phase.
- 5.7 Indirect impacts to the SINC could be possible through increased disturbance or recreational pressure from the housing development. However, the SINC is fenced off and there are no public rights of way through it, therefore access is restricted to the public. The SINC is owned by a third party and not under ownership of Crayfern Homes and therefore limiting access further is not possible. It is unclear if there are any recreational impacts on the SINC and whether the development would add to them. Appropriate signage and interpretation of the SINC could be a means of educating site users to its value and importance ecologically.

Habitats

BAP Habitats

- 5.8 The data search revealed that there are four BAP Priority habitats present within 500m of the proposed development site. These are all within Littlepark Wood (East) SINC which is located adjacent to the northern boundary of the development site. It is

possible that there may be some short-term negative ecological impact on the woodland during the construction phase of the development due to noise. Contractors will be made aware of the proximity of the BAP habitats and the need to protect it.

- 5.9 Removal of existing habitats which have the potential to provide shelter, foraging and nesting resources to a range of species and which link the proposed development site to the surrounding landscape, could have negative ecological impacts at both the site and landscape scale. However, the current proposed works does not involve the removal of any important trees, or hedgerow plants within the woodland buffer between the development site and the A3(M).
- 5.10 The ecological importance of each of the habitats identified on-site and immediately off-site during the Extended Phase 1 Survey has been assessed according to its relevance to the UK BAP, Local BAPs, Section 41 of the NERC Act, its ability to support protected or notable species and the likelihood of negative impact upon it as a result of the current proposal. The assessment is summarised further below.

Short-sward 'grazed' improved grassland

- 5.11 The areas of improved grassland are considered to be of low ecological value due to intensive horse grazing. Sward height at the time of survey was <10mm and of low species diversity. The grassland area offers little opportunity for foraging or refuge for faunal species. The predicted negative ecological impact resulting from the loss of this area of grassland is considered to be 'low' at the site and landscape scales. The species present are widespread and common and are easily re-creatable in open spaces and residential areas. There will be an overall loss in area but it is considered to mitigate for this

Poor semi-improved grassland

- 5.12 The grassland within the southern field is species-poor and dominated by ranker grass species. However, the grass was tussocky with a sward height of >100mm thus providing foraging and shelter opportunities for a range of faunal species including reptiles. In addition the adjacent ruderal vegetation provides species and structural diversity within the development boundary. The removal of this habitat from the southern field will impact on any population of reptiles present. In the absence of appropriate mitigation, the predicted ecological impact from the proposed development is considered to be 'medium' at the site and landscape scales.

Ruderal vegetation and scrub

- 5.13 The species and structural diversity of these habitats provide ideal shelter and foraging opportunities for reptiles and also corridor 'connectivity' to other optimal habitat for these species including the mature and semi-mature woodland areas and the improved and semi-improved grassland. The scrub is situated at the base of the woodland bank forming immediately adjacent to the western boundary of the site and, as such, provides ideal gradient habitat between potential shelter and foraging areas for fauna. The removal of this habitat could result in the destruction of suitable habitat for reptiles and lead to isolation of any population on site. As the development is likely to involve the removal or alteration of this habitat, in the absence of appropriate mitigation, the potential negative ecological impact could be 'medium' at the site scale and 'low' at the landscape scale.

Species-poor hedgerow

- 5.14 Hedgerow habitats and their associated ground flora can provide shelter and foraging opportunities for a range of species including invertebrates, reptiles, amphibians, bats and birds, as well as offering nesting potential for birds. Hedgerow habitats are an important component of maintaining ecological connectivity between habitats at the landscape scale and thus help to reduce the risk of isolation in populations of protected and notable fauna. If the development were to involve the removal of this habitat, in the absence of appropriate mitigation, the potential negative ecological impact could be 'medium' at the site scale and 'low' at the landscape scale.

Woodland bank

- 5.15 The woodland bank present immediately adjacent to the western boundary of the site provides shelter and foraging opportunities for a range of fauna. In addition, the habitat provides ideal connectivity for species from the scrub / ruderal vegetation areas in the southern field to the woodland SINC to the north of the site. This woodland bank is outside proposed development boundary and therefore is not scheduled for removal as part of the development. Should removal of this habitat become necessary, the potential negative ecological impact could be 'high' at the site and 'medium' at landscape scale.

Scattered broad-leaf and coniferous trees

- 5.16 A total of 4 mature and semi-mature oak trees located along the stream bisecting the northern and southern fields were assessed for their potential to support roosting bats. Full details of the assessment are provided in **Appendix C**. The remaining scattered trees provide foraging potential and shelter for a number of fauna. In addition, given their proximity to the hedgerow boundaries, the trees provide some connectivity to the wider landscape and woodland SINC. The proposed development will involve the removal of a number of these trees. However, sufficient vegetation will remain in the form of hedgerow boundaries and additional trees will need to be planted within the landscaping scheme. Therefore, provided measures are taken to ensure vegetation removal takes place outside bird nesting season or following prior inspection by an ecologist, the potential ecological impact resulting from the loss of the scattered trees is deemed to be 'medium' at the site scale and 'low' at the landscape scale.

Stream

- 5.17 The water quality of the stream was poor with no aquatic invertebrates recorded. The banks are heavily shaded by oak trees on the northern side and scrub / scattered trees on the southern side. In addition, the bank sides are steep and heavily horse poached on the northern side. This stream does not provide suitable vegetation or bank structure to support protected aquatic fauna such as otters or water voles. The stream will remain as part of the development and should be protected and enhanced with a suitable buffer and management regime to increase its ecological value. The potential negative impact from the proposed development on the stream is considered to be 'low' at both the site and landscape scales provided Pollution Prevention and Control Guidance (PPG1; Environment Agency, 2001 and PPG1; Environment Agency, 2007) is followed at all stages of the works.

Protected and Notable Species

Badgers

- 5.18 Three records for badger were returned within 2km of the development site. No badger setts were found in the vicinity of the site. Although it is possible that the woodland at the western boundary could offer some limited foraging potential for badger and also link to the SINC, the predicted negative ecological impact upon badgers as a result of the proposed development is considered to be 'low - negligible' at the site and landscape scales.
- 5.19 As no badger setts were found, development works are free to proceed without further regard to this species, although if a badger sett is subsequently discovered within 30m of the proposed works then a licence from Natural England may be required.

Bats

- 5.20 The desk study revealed records of seven bat species within 2km of the proposed development site.
- 5.21 Four mature oak trees adjacent to the stream between the northern and southern fields were assessed for their potential to support roosting bats (depicted on the Extended Phase 1 Habitat Map: **Appendix B** and described in Target Notes T.1 – T.4: **Appendix C**). None of the trees assessed are due to be removed as part of this development, although a new road will be sited close to the root areas. Appropriate measures will have to be taken to ensure roots are not damaged and British Standard 5837 will be adhered to if necessary. If the removal of these trees is unavoidable, prior inspection by an ecologist for roosting bats will be necessary. Appropriate fencing should be in place to ensure the trees are protected properly during the construction phase of the proposals.
- 5.22 The two residential dwellings scheduled to be demolished as part of the proposed development were assessed in accordance with current guidance at the time (BCT, 2007) for their potential to support roosting bats. The assessment revealed the dwellings to be of 'medium' roosting potential for bat species.
- 5.23 No evidence of bats was recorded within the attic spaces. Daylight was visible through gaps in the roofing felt and near the eaves. However, external features including raised tiles, gaps underneath the wooden soffits and a gap adjacent to the guttering were all deemed suitable access points for roosting bats. Further ecological survey work will be required to establish the presence / likely absence of roosting bats and assess the need for a protected species licence prior to demolition.

Birds

- 5.24 A dunnock (*Prunella modularis*) was recorded during the survey within the scrub area to the north-west of the northern field. Dunnocks are listed as 'Amber' status on the BOCC data list.
- 5.25 The hedgerow boundaries, scrub areas and woodland bank all have potential to support nesting birds. Building works / demolition and any associated vegetation clearance will not be conducted during peak bird nesting season which runs from 01st March to 01st August (1st October for swallows), inclusive, unless prior inspection by an ecologist can show that there are no nesting birds present. The boundary trees and hedgerows must

be protected during the works. This may mean a stand-off zone of at least 2m from the hedgerow bases and the erection of Heras fencing (or similar) if necessary, to prevent machinery encroachment.

- 5.26 Records for ground nesting birds such as skylark were returned from within 2km of the proposed development site. Adjacent arable fields and calcareous grassland could provide suitable habitat for ground nesting birds. Habitats within the development site boundary are considered unsuitable due to the presence horses in the northern field and long-sward tussocky grassland in the southern field. It is considered likely that these species would make use of more optimal habitat in the wider landscape.
- 5.27 In the absence of appropriate mitigation, the potential negative ecological impact upon birds as a result of the development is considered to be 'high' at the site scale and 'medium' at the landscape scale. Through the appropriate timing of works and incorporation of bird nesting provision within the design of the new dwellings, the negative ecological effects of the proposed works would be reduced to 'low' at both the site and landscape scales. Details of mitigation are discussed in **Section 6.0**.

Dormice

- 5.28 A total of 30 records for dormouse (*Muscardinus avellanarius*) were returned from within 2km of the proposed development site. These were from 2007 and 2009 and in the same 1km grid square. No evidence of dormouse presence was found during the survey through analysis of nut samples. The hedgerows on the northern and western boundaries immediately adjacent to the site could, potentially, support this species as these provide connectivity to other areas of more suitable habitat within the wider landscape including the woodland SINC. However, no hedgerows are due to be removed as part of this development.
- 5.29 There would be an impact on the line of trees dividing the site in two, due to the proposed road linking the northern and southern areas. The line of trees leads up to the residential area and therefore it would be unlikely that, if present, a dormouse would be present or need to forage so close. The presence of the road would not completely restrict connectivity as canopy connectivity would still be present for this arboreal species.
- 5.30 The southern-most field has sub-optimal ecological value for dormice. It would appear to have more disturbance from fly-tipping and dumping in areas with habitat suitable for foraging dormice (i.e. bramble scrub and hedgerows). There are no impacts to the hedgerows on the boundaries although there is a loss of some areas of scrub, including bramble scrub, adjacent to the boundaries. It was considered that the southern half of the site as a whole was sub-optimal for dormice as connectivity further south from here is extremely limited due to the motorway, residential housing and employment uses.
- 5.31 In the absence of appropriate mitigation, the negative ecological impact upon dormice as a result of the proposed development is considered to be 'low' at the site and landscape scales. As a precautionary measure, scrub should be removed from the southern section of the site under supervision of an ecologist.

Great crested newts

- 5.32 The data search returned no records of great crested newt within 2km of the proposed development site. Although the HSI assessment showed the water-body at the north-eastern corner of the northern field to be of 'poor' suitability to support great crested

newts, conditions had not changed significantly from the survey carried out in 2009 (see Hampshire Ecological Services, 2010). Therefore, the water-body could be considered as having some potential to provide habitat for great crested newt. Additionally, it was not possible to assess the suitability of the other ponds within 1km of the development site due to their location (within private land and on a private golf course). Further surveys are required to establish the presence / likely absence of great crested newts. These surveys will provide the necessary information to assess ecological impact on the species from the proposed development.

Otters and water voles

- 5.33 Records were returned for water vole within 2km of the site. However, there are no suitable aquatic habitats present with the boundaries of the proposed development site. No records were returned for otter within 2km of the proposed development.

Plants

- 5.34 The short-sward improved grassland areas within the northern field currently contain a low diversity of native flora. This area could be enhanced using a native wildflower seed mix. Due to the currently poor ecological value of the grassland, the net loss of grassland is considered to be of 'low' ecological impact.
- 5.35 The semi-improved grassland within the southern field provides greater opportunity for foraging and shelter for protected species. The grass is tussocky with differing of sward length. The floral diversity is greater with a wider variety of native grasses and flowering plants. Any retained grassland areas within the southern field could be enhanced using native wildflower seed mix appropriate to the soil type and of local provenance. In the absence of mitigation, the ecological impact from the loss of this grassland is considered to be 'medium' at the site scale and 'low' at the landscape scale.
- 5.36 The scrub and ruderal vegetation within both the northern and southern fields provides ideal foraging and shelter for a range of native fauna. In addition, these areas provide a structural diversity and graduation between the woodland bank and the grassed habitat. Although currently botanically poor the area provides an ideal opportunity for enhancement using seed mix for hedgerow bases to provide a vegetative buffer between the hedgerows and tree borders using native species to mimic woodland-edge conditions. This could benefit biodiversity and provide additional foraging and refuge for a range of fauna including bees. In the absence of mitigation, the ecological impact from the loss of the scrub and ruderal vegetation is considered to be 'medium' at the site scale and 'low' at the landscape scale.

Reptiles

- 5.37 The site contains habitat suitable for providing shelter and foraging opportunities for reptiles. These include areas of scrub, ruderal vegetation, tussocky grass and woodland edge within the southern field together with scrub, woodland edge and hedgerow within the northern field. The presence of a tyre pile and a number of brash piles (depicted on the Extended Phase 1 Habitat Map: **Appendix B** and described in Target Notes: **Appendix C**) could provide shelter and foraging opportunities for reptiles. The habitats could potentially act as 'commuting corridors' for reptiles to access the site from the wider landscape and have potential to support the commoner species of reptile, such as slow-worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*) and grass snake (*Natrix*

natrix). Records were returned for all common species of reptile within 2km of the site. The Hampshire Ecological Services Protected Species Report (2010) recorded small populations of slow worms and common lizards on site.

- 5.38 The presence of slow worm (*Anguis fragilis*) was confirmed during the Phase 1 survey. Further surveys are required to ascertain the presence or likely absence of other species of reptile and the population of slow worms within areas of suitable habitat on site.
- 5.39 Once the further survey work has been completed, the results will inform recommended mitigation measures in order to comply with current UK legislation. These could include providing suitable habitat for reptiles within the development boundary such as planting a vegetative buffer between the hedgerows and tree borders with native species to mimic woodland-edge conditions. Any open spaces should incorporate reptile habitat and ensure linkage is maintained with the greater countryside. This would benefit biodiversity in general and provide additional foraging and refuge for reptile species. Additional foraging and refuge potential could be provided in the form of hibernacula, log and brash piles and compost heaps at selected points and landscaping within residential areas should offer value to reptiles by planting native hedges and borders with low shrubs.
- 5.40 In the absence of mitigation, the impact on reptiles present on site is considered to be 'medium' at the site scale and 'low' at the landscape scale, however further reptile surveys would be required to appropriately determine this.

Other species (including amphibians, invertebrates and mammals)

- 5.41 No protected species of invertebrate were observed to be present during the survey. However, the site contains areas of habitat suitable for stag beetle (protected by Wildlife and Countryside Act (1981)). These include areas of rotting wood and tree root areas. In the absence of appropriate mitigation, the negative ecological impact upon protected invertebrate species as a result of the proposed development is considered to be 'medium' at the site scale and 'low' at the landscape scale.
- 5.42 Records were returned for the cinnabar moth. The larval food plant for this species (common ragwort) was recorded within the site boundary. Including ragwort within the planting scheme will reduce the impact of the development on the cinnabar moth (a UK BAP species). It is considered unlikely that the site contains other protected invertebrates due to low diversity of plant species present on-site. However, as invertebrates are ubiquitous, and the site contains areas of grassland and hedgerow habitats, it is not possible to rule out the presence of protected invertebrate species. Where possible, the proposal should seek to retain and enhance grassland areas to promote floral and invertebrate species diversity. Planting a vegetative buffer beside the hedgerows and tree borders with native species to mimic woodland-edge conditions would benefit biodiversity in general and provide additional foraging and refuge for a range of invertebrate species as well as increased connectivity across the site.
- 5.43 Records were returned for hedgehog (*Erinaceus europaeus*) within 2km of the development site. Suitable habitat for hedgehog is present on site and adjacent woodland/hedgerow/residential garden areas. Mitigation in the form of 'hedgehog friendly' fencing could be incorporated into the landscaping plan for the development and landscape planting to ensure species diversity for hedgehog prey should be considered in residential areas and any open spaces. Scrub removal on site should be carried out under supervision of an ecologist so that if any hedgehogs are encountered they can be safely moved to a suitable area not impacted by the construction proposals.

Summary of Relevant Potential Ecological Impacts

- 5.44 Habitats within the site boundary have the potential to support a number of protected species. Mitigation required to avoid contravention of current UK legislation is detailed within section 6.0. The development presents opportunities to enhance biodiversity within the development in accordance with current planning policy. Details are provided in the recommendations and appendices.

6.0 Requirements and Recommendations

Essential Pre-Application Further Survey Work

Bats

- 6.1 The existing dwellings (B1 and B2) due to be demolished as part of the proposed development support features suitable for roosting bats. Further survey work is required to determine presence / absence of roosting bats within these buildings.
- 6.2 A suite of bat surveys (comprising dawn and dusk) will be required from the end of April – September. These surveys would be required to monitor the residential property, stable block and outbuildings for bats. It may be possible to link the emergence surveys in with activity surveys of the whole site. Should evidence of roosting bats be determined as a result of the surveys, a European Protected Species Licence may be required prior to demolition. Mitigation in the form of crevice features and appropriate timing may be required to ensure there is no harm on bats or their roosts.
- 6.3 The mature oak trees (T1 – T4) forming the boundary between the northern and southern fields were also identified as having features suitable for roosting bats. In addition, the grazed improved grassland area provides ideal foraging opportunities for a range of bat species.
- 6.4 Further survey work is required to determine whether the wider site supports roosting/foraging bats. A suite of transect/activity surveys will also be required to assess bat activity of the proposed development site. The activity surveys may be linked in with the emergence surveys as both surveys will look at the site as a whole. These surveys will involve surveyors walking a pre-determined transect route across both fields to record bats emerging from trees or foraging over the site. These surveys can take place between April – September and should be spread out across these optimal months to give a good impression of bat use across the active season for bats. If bats are found to be foraging on site then suitable open spaces will need to be retained on site to mitigate for the loss of the foraging habitat.
- 6.5 The results from the phase 2 works will inform appropriate mitigation measures in relation to bats.

Reptiles

- 6.6 Further surveys are required to ascertain the presence or likely absence of reptiles within areas of suitable habitat on site. This will involve an initial visit to the site to lay out artificial refugia (squares of roofing felt and/or corrugated tin), followed by 7 further visits under suitable weather conditions during the active season (April to September).

- 6.7 The results from the phase 2 works will inform appropriate mitigation measures in relation to reptiles.

Great Crested Newts

- 6.8 Further surveys are required to ascertain the presence or likely absence of great crested newts. Four separate survey visits are required during optimum survey season (April to July) with at least two surveys carried out between mid-April to mid-May. In accordance with current guidance (Natural England, 2001; Griffiths and Langton, 1998), a minimum of three different survey techniques will be employed for each visit to increase the chances of detecting newt presence. Techniques employed will be appropriate to the condition of the water-body at the time of each survey.
- 6.9 The results from the phase 2 works will inform appropriate mitigation measures in relation to great crested newts.

Further Measures Required to Mitigate Against the Effects of the Proposed Development

Nesting Birds

- 6.10 It is an offence under the Wildlife and Countryside Act 1981 (as amended) to disturb nesting birds (further details relating to current legislation are described in **Appendix H**). To avoid contravention of protected species legislation, any building works / demolition or vegetation removal will not be undertaken during bird nesting season (1st March until 01st August) unless prior inspection by an ecologist concludes that there are no nesting birds present. If the presence of nesting birds is confirmed, any works which may disturb them will be delayed until the young birds have fledged the nest.
- 6.11 Bird nesting boxes will be incorporated into 10No. new dwellings, to mitigate for the loss of bird nesting habitat. These will consist of the following:
- 5No. sparrow terraces to be attached to the outside of the building under the eaves or incorporated into fabric of building;
 - 2No. nest bricks for swifts suitable for incorporating into the fabric of the building; and
 - 3No. nest bricks for pied wagtail, spotted flycatcher and black redstart suitable for incorporating into the fabric of the building.

Suggested bird nest boxes are shown in **Appendix G**.

Protection of trees and hedgerows prior to, during and after the development

- 6.12 Removal of, or physical disturbance to, all woodland, hedgerows (including line of trees separating northern and southern site) and associated margins will be avoided. This will require a stand-off zone of at least 1m between any machinery and the habitat and, if necessary, the erection of suitable fencing (e.g. Heras) to protect these areas during the construction phase of the development. Appropriate advice will need to be acquired and adhered to regarding trees and their root protection.

Protection of highlighted mature trees prior to, during and post development

- 6.13 Removal of any of the trees highlighted in this report as having the potential to support roosting bats will be avoided. This will require appropriate access for construction machinery to be established prior to commencement of the construction phase to avoid compacting the root system of trees T1 to T4 inclusive. This will involve a stand-off zone of at least 5m between the machinery access and the base of each highlighted trees. If necessary, the erection of suitable fencing (e.g. Heras) could be considered to protect these areas during the construction phase of the development. If any of the mature trees highlighted by this report as having the potential to support roosting bats are required to be removed or work is to be carried out on them as part of the development or associated landscaping, they must first be inspected by an ecologist to determine the presence or likely absence of roosting bats and/or nesting birds.

Protection of SINC and BAP Habitats During Construction Phase of Proposals

- 6.14 Appropriate signage and fencing should be erected to warn construction workers of the importance of the SINC site adjacent and of the hedgerow features on site. Construction workers should be properly briefed on where equipment and materials can be stored and dumped without impacting the ecological interest of the site and adjacent sites.

Scrub Clearance

- 6.15 Scrub should be cleared on site under supervision of an ecologist. This will ensure reptiles and/or small mammals (i.e. hedgehogs) have minimal disturbance. This should be carried out outside of winter to minimise disturbance to any creatures using the scrub to hibernate.

Further Measures Recommended to Mitigate against the Effects of the Proposed Development

Biodiversity Enhancement

- 6.16 In accordance with the Natural Environment and Rural Communities Act (2006), the National Planning Policy Framework (2012) and Government Circular 06/2005 (ODPM, 2005), the master planning process should seek to incorporate measures to further the conservation of protected species and biodiversity in general
- 6.17 A habitat enhancement and management plan should be prepared and include measures to enhance biodiversity in the area. Connectivity to the wider countryside to reduce isolation of pockets of the site (most notably the southern area proposed as a nature area) should be covered in the landscape proposals and foraging habitat for species such as bats and birds should be created. The following recommended measures should be incorporated:
- The stag beetle is a globally threatened species, protected under the Wildlife and Countryside Act 1981, as amended, and listed as a priority species for the UK Biodiversity Action Plan. Creating 2No. log piles within the landscape plan for the development will mitigate for any loss of habitat for stag beetles. These will be located at hedgerow edges within the northern and southern fields. Log piles

provide ideal habitat for breeding stag beetles. Appropriate designs are given in **Appendix G**;

- Any hedgerow planting required within the landscape scheme for the proposed new development should incorporate native species such as hazel, hawthorn, blackthorn and spindle;
- Planting of a vegetative buffer adjacent to the hedgerows and tree borders (especially along the western boundary) with native species to mimic woodland-edge conditions (a recommended species planting list is included in **Appendix H**);
- Planting of native forbs and shrubs in areas identified for supplementary planting or screening;
- Enhancement of areas of retained grassland and residential areas through the sowing of a native wildflower mix for lawns (such as 'The Flowering Lawn Seed Mix' available from www.reallywildflowers.co.uk or similar) or plug / bulb planting of native flowering species (**Appendix H**).

7.0 References and Bibliography

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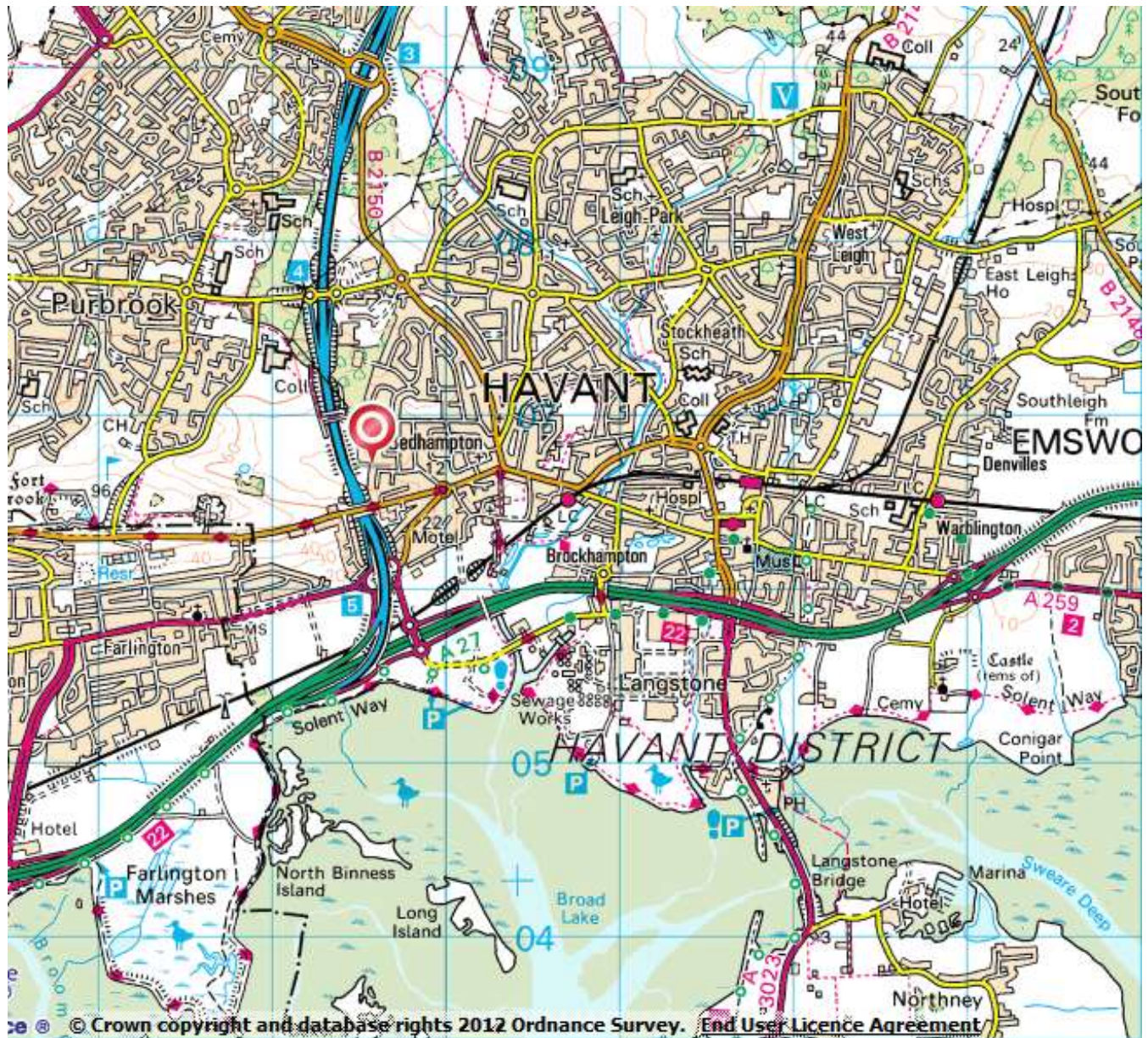
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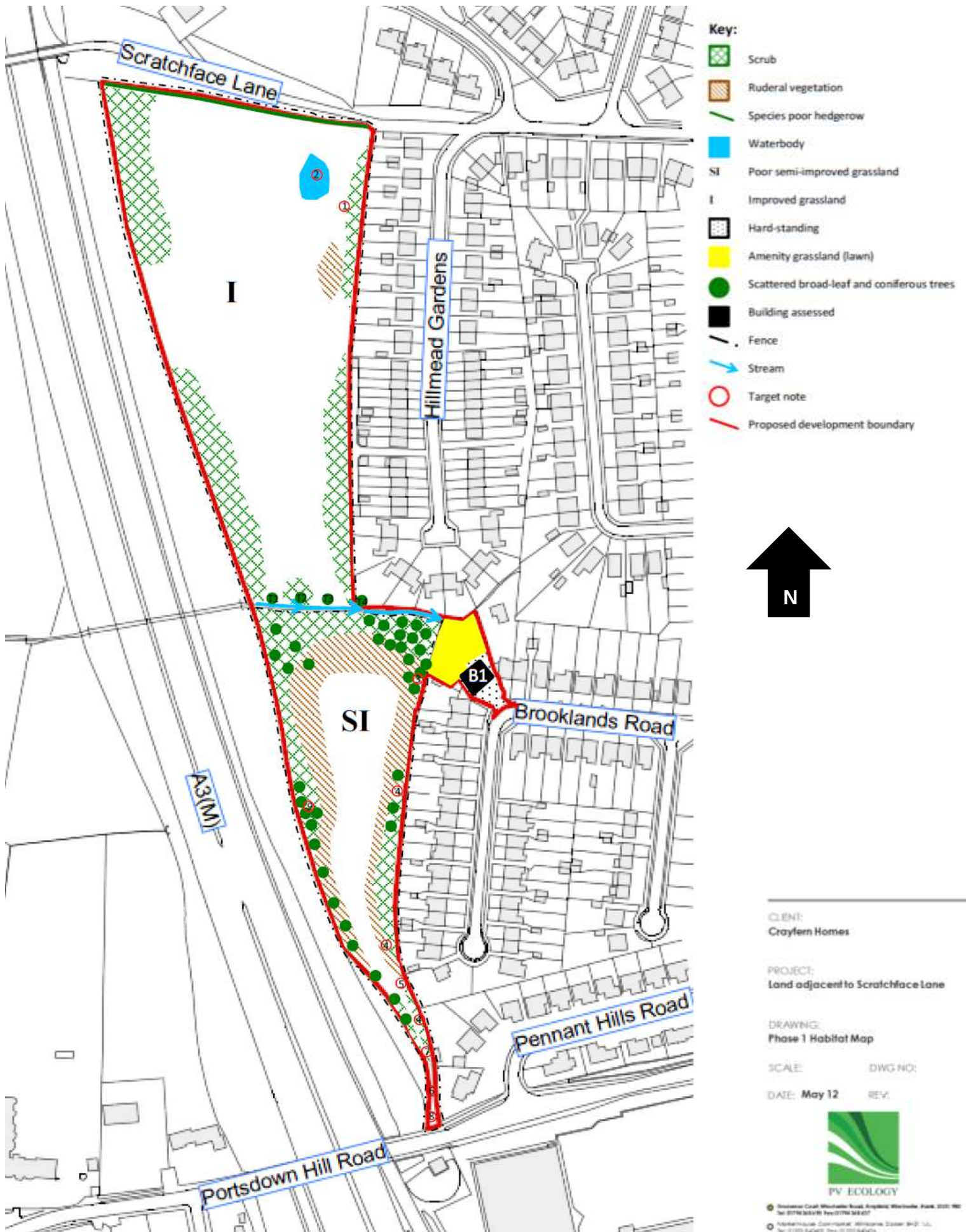
Appendices

Appendix A: Site Location Plan

Key: Site location depicted with red and white pin.



Appendix B: Extended Phase 1 Habitat Survey Map



Appendix C: Target Notes to Accompany Appendix B

- Target Note 1:** Horse trough.
- Target Note 2:** Water-body.
- Target Note 3:** Patch of mature Corsican pine (*Pinus nigra* ssp. *laricio*)
- Target Note 4:** Brash pile.
- Target Note 5:** Juvenile and sub-adult slow worm (*Anguis fragilis*) under extant refugia.
- Target Note 6:** Tin shed ('negligible' bat roosting potential).
- Target Note 7:** Tyres on earth mound with potential for reptiles.
- Target Note 8:** Rubble pile with potential for reptiles.
- Target Note 9:** Patch of mature sycamore (*Acer pseudoplatanus*).

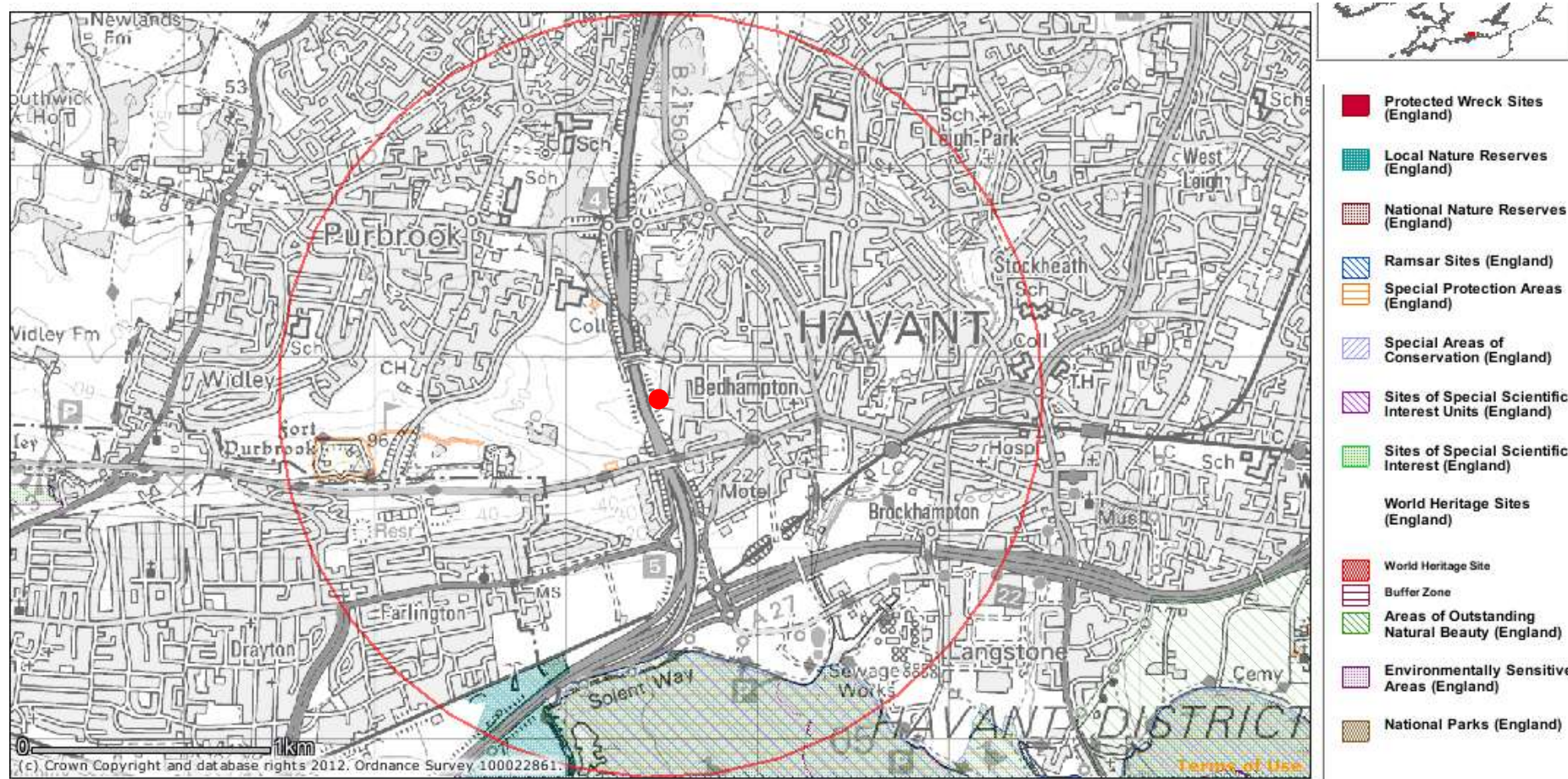
Details of trees assessed for bat roosting potential

Target note	Species	Features suitable for roosting bats	Potential to support roosting bats
T.1	Pedunculate oak (<i>Quercus robur</i>)	Split in trunk, some peeling bark.	Low - medium
T.2	Pedunculate oak (<i>Quercus robur</i>)	Some small splits in trunk, 2 holes, peeling bark, thick ivy stems with crevices beneath.	Medium
T.3	Pedunculate oak (<i>Quercus robur</i>)	Small split in trunk, some holes.	Low – medium
T.4	Pedunculate oak (<i>Quercus robur</i>)	Some holes and ivy at the base of the trunk.	Low - medium

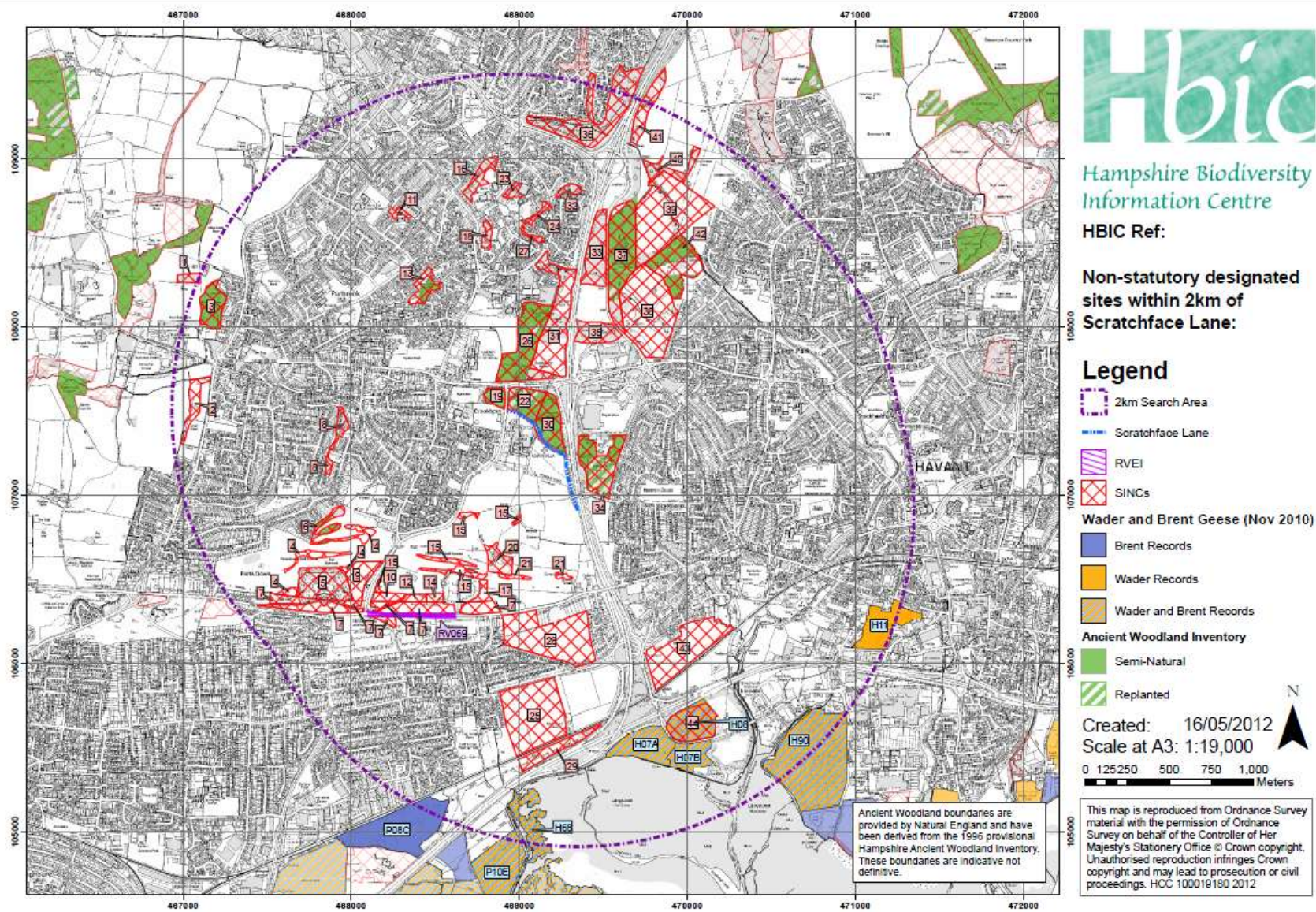
Appendix D: Proposed Development Plans



Appendix E: Magic Statutory Nature Conservation Sites



Appendix F: HBIC Non- Statutory Nature Conservation Sites Data



Appendix G: Suggested Bird Boxes and Log Pile Design



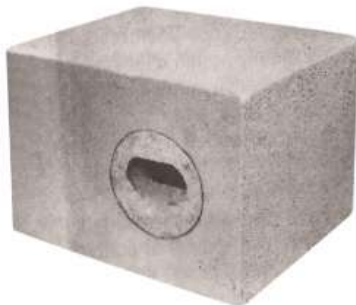
Sparrow Terrace: Schwegler 1SP Bird Box

House sparrows have declined in numbers drastically in recent years and as yet it is not fully known why. This species is gregarious and the sparrow terrace provides enough space for multiple nests. Measures 245mm x 430mm x 200mm and weighs 13kgs.



Schwegler No 26 Brick Box

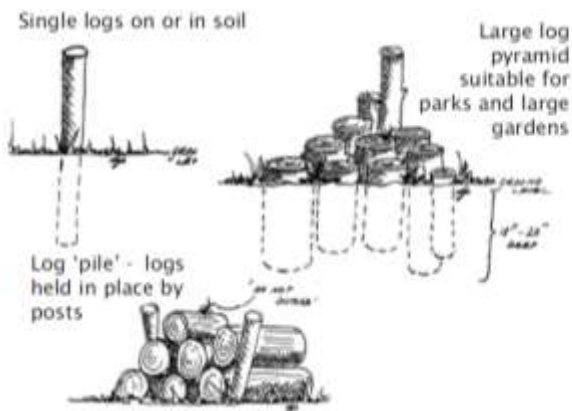
Designed for installation into the fabric of a building, this box is open fronted and suitable for pied wagtail, spotted flycatcher and black redstart.



Schwegler No 25 Brick Box

Designed for installation into the fabric of a building, this box is suitable for swifts.

Log piles: Suitable for breeding stag beetles



Appendix H: Suggested Species Planting List

Common Name	Latin Name
Tree Layer	
Ash	<i>Fraxinus excelsior</i>
Beech	<i>Fagus sylvatica</i>
Crab apple	<i>Malus sylvestris</i>
Hazel	<i>Corylus avellana</i>
Holly	<i>Ilex aquifolium</i>
Oak	<i>Quercus robur</i>
Rowan	<i>Sorbus aucuparia</i>
Shrub Layer	
Spindle	<i>Euonymus europaeus</i>
Dogrose	<i>Rosa canina</i>
Dogwood	<i>Cornus sanguinea</i>
Hawthorn	<i>Crataegus monogyna</i>
Blackthorn	<i>Prunus spinosa</i>
Base Layer	
Bugle	<i>Ajuga reptans</i>
Butcher's Broom	<i>Ruscus aculeatus</i>
Common Dog Violet	<i>Viola riviniana</i>
Devilsbit Scabious	<i>Succisa pratensis</i>
English Bluebell	<i>Hyacinthoides non-scripta</i>
Foxglove	<i>Digitalis purpurea</i>
Ground Ivy	<i>Glechoma hederacea</i>
Herb Robert	<i>Geranium robertianum</i>
Oxe-eye Daisy	<i>Leucanthemum vulgare</i>
Red Campion	<i>Silene dioica</i>
Stinking Hellebore	<i>Helleborus foetidus</i>
Wild Daffodil	<i>Narcissus pseudonarcissus</i>
Wood Anemone	<i>Anemone nemorosa</i>
Wood Betony	<i>Stachys officinalis</i>
Wood Sage	<i>Teucrium scorodonia</i>
Wood Vetch	<i>Vicia sylvatica</i>

Appendix I: Protected Species Legislation

Bats

These species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010*. They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb any such animal, including in particular any disturbance which is likely:
 - to impair its ability to survive, breed, or rear or nurture their young;
 - to impair its ability to hibernate or migrate;
 - to affect significantly the local distribution or abundance of that species; or
- damage or destroy a breeding site or resting place of any such animal; or
- intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- Greater horseshoe bat (*Rhinolophus ferrumequinum*);
- Lesser horseshoe bat (*Rhinolophus hipposideros*);
- Bechstein's bat (*Myotis bechsteinii*);
- Barbastelle (*Barbastella barbastellus*);
- Greater mouse-eared bat (*Myotis myotis*).

In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favorable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

Dormouse (*Muscardinus avellanarius*), European otter (*Lutra lutra*) and Great Crested Newt (*Triturus cristatus*)

These species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010*. They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb any such animal, including in particular any disturbance which is likely:
 - to impair its ability to survive, breed, or rear or nurture their young;
 - to impair its ability to hibernate or migrate.

- to affect significantly the local distribution or abundance of that species; or
- damage or destroy a breeding site or resting place of any such animal; or
- intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

Nationally Protected Species

Badger (*Meles meles*)

The *Protection of Badgers Act 1992* consolidates previous legislation (including the *Badgers Acts 1973 and 1991 Badgers (Further Protection) Act 1991*). It makes it a serious offence to:

- kill, injure or take a badger;
- attempt to kill, injure or take a badger; or
- to damage or interfere with a sett.

The 1992 Act defines a badger sett as “*any structure or place which displays signs indicating current use by a badger*”.

Breeding Birds

With certain exceptions¹, all wild birds, their nests and eggs are protected by section 1 of the *Wildlife and Countryside Act 1981* (as amended). Therefore, it is an offence, *inter alia*, to:

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

These offences do not apply to hunting of birds listed in Schedule 2 subject to various controls.

Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- intentionally or recklessly disturb the dependent young of any such bird.

Reptiles

The four widespread² species of reptile that are native to Britain, namely common or viviparous lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), adder (*Vipera berus*) and grass snake

¹ Some species, such as game birds, are exempt in certain circumstances

² The other native species of British reptile (sand lizard and smooth snake) receive a higher level of protection under the *Habitats Regulations 1994* and (in England and Wales only) the *Wildlife and Countryside Act 1981* (as amended). However, the distribution of these species are restricted to only a very few sites. All marine turtles (Cheloniidae and Dermochelyidae) are also protected.

(*Natrix natrix helvetica*), are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence, *inter alia*, to:

- intentionally kill or injure any of these species.

Water vole (*Arvicola amphibius*)

The water vole is listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and is afforded limited protection under Section 9 of this Act. This makes it an offence, *inter alia*, to:

- intentionally kill, injure, or take (handle) any a water vole (in England only);
- intentionally or recklessly damage or destroy or obstruct access to any structure or place which water voles use for shelter or protection; or
- intentionally or recklessly disturb water voles while they are using such a place.