

5.0 PROTECTED SPECIES & SPECIES OF CONSERVATION CONCERN

5.1 Birds

Breeding Bird Survey

- 5.1.1 Data on nesting birds was collected during survey work in Spring and Summer 2011. The site within the proposed development area contains a number of habitats from mature and overgrown gardens to developing scrub and arable farmland. A number of species of conservation concern and locally notable species were recorded on site. The results of the bird survey work are provided in **Table 2** below.

Table 2: Species of Conservation Concern & Other Species with Notes

Species	Status	Comments
Common Kestrel <i>Falco tinnunculus</i>	Amber (SPEC)	Hunting on site on a couple of visits over the arable, but not regular.
Mediterranean Gull <i>Larus melanocephalus</i>	Sch1 (BR)	35 birds were counted on two consecutive dates in April 2011, attracted to the site by spring ploughing
Herring Gull <i>Larus argentatus</i>	Red (BDP, WDP, BDMP, WI)	Birds regularly overfly the site but no birds using the site.
Black-headed Gull <i>Larus ridibundus</i>	Amber (WDMP)	As per Mediterranean Gull
Common Swift <i>Apus apus</i>	Amber (BDMP)	Recorded during summer survey work foraging over site
Green Woodpecker <i>Picus viridis</i>	(SPEC)	1 pair noted usually around the northern end of the site, breeding considered likely off site to the north.
Sky Lark <i>Alauda arvensis</i>	BAP, Red (BDP, SPEC, BDMP)	1 territory in arable east of the site
Barn Swallow <i>Hirundo rustica</i>	Amber (SPEC)	Regularly recorded during survey work foraging over site and inspecting farm buildings in Manor Farmyard.
House Martin <i>Delichon urbicum</i>	Amber (SPEC, BDMP)	Regularly recorded during survey work foraging over site
Hedge Accentor <i>Prunella modularis</i>	Amber (BDMP)	3-4 territories on site
Song Thrush <i>Turdus philomelos</i>	BAP, Red (BDP)	two territories on/near site at northern and southern edges
Common Starling <i>Sturnus vulgaris</i>	Red (BDP, SPEC)	Not breeding on site, but present off site
House Sparrow <i>Passer domesticus</i>	Red (BDP, SPEC)	Not breeding on site, but present off site
Common Linnet <i>Carduelis cannabina</i>	Red (BDP, SPEC, BDMP)	Two to three birds noted in farmland to the east of the site likely to be breeding locally, birds generally mobile and often feeding in the open areas on site
Common Bullfinch <i>Pyrrhula pyrrhula</i>	Amber (BDMP)	A pair was present on a number of visits to the east of the Manor Farm Nursery buildings. Breeding not confirmed.

Key

Sch1 = Listed under Schedule 1 of the Wildlife & Countryside Act 1981 (as amended)

Annex 1 = Listed under Annex 1 of the Wild Birds Directive 79/409/EEC

BAP = Listed as a local or national Biodiversity Action Plan species

Red = Red Listed bird of Conservation Concern

Amber = Amber listed bird of Conservation Concern

(nb details of these category listings is provided in **Technical Appendix 7**)

- 5.1.2 The site provides foraging opportunities for a number of species of conservation concern, most being widespread and common species. There are few species actually recorded nesting

on site, but most are likely to nest within the wider zone of influence. The Red listed (for declining populations - see Eaton *et al* 2009) and BAP species Skylark, Song Thrush, and Linnet were noted foraging within the arable landscape during survey work, and 1 Skylark territory was present at the eastern end of the wider site. Low numbers of Starling and House Sparrow were also noted. The early spring ploughing of part of the arable field network provided opportunistic foraging for a day or two for nesting Gulls in the harbours south of the site, with the Schedule 1 species Mediterranean Gull recorded in good numbers (a result of a successful breeding populations south of the site).

- 5.1.3 As well as the species of conservation concern an active Sparrowhawk *Accipiter nisus* nest was recorded within the farmyard of Manor Farm in the largest Oak, covered by Ivy (marked as a Category 2b tree on **Figure 4**). This species also strongly associated with Oak trees on the northern boundary of Manor Farm. This was successful in 2011 with at least two fledged young noted during August survey work.
- 5.1.4 The potential for the Schedule 1 species Barn Owl *Tyto alba* was also considered. The habitats on the parts of the site proposed to be developed are only marginally suitable for this species, but there is foraging habitat in the wider arable landscape. No evidence of Barn Owl use was noted.

Winter Bird Survey

- 5.1.5 In the recent revised Brent Goose Strategy for the Solent (HWT, 2010) assessment is made of all grasslands and open space, including farmland and inland areas up to 2km from the coast (based on location or habitat). As a part of the general assessment, the large arable field that forms a small part of the proposed Manor Farm development site and continues further east of this proposed site was included. Access to this land was not undertaken during the survey, and a desktop assessment concluded that the land is of 'uncertain potential for waders'. This appears to have been a blanket designation of all the arable farmland to the east of the site.
- 5.1.6 Whilst the majority of the proposed development site at Manor Farm and Copsey's Nurseries contains no habitats suitable for regular use by waterfowl (wildfowl and waders), the wider arable field is a large and open arable landscape, currently intensively farmed, but as a market garden with a diverse mix of crops. The use of the land as arable mostly provides limited opportunity for waterfowl. This combined with the distance from the coast provides a low potential for use of the site by waterfowl. A small agricultural pond is present on the eastern boundary of the main survey area. However given the size of this pond it is considered to be of negligible value to wintering waterfowl.
- 5.1.7 A number of winter visits were made to the site to determine whether any waterfowl use was made of the wider farmland and to record general bird use. The dates and results of these visits is provided in **Table 3** below. No waterfowl were recorded during the visits.

Table 3: Species of Conservation Concern Recorded during Survey

Species (BoCC*)	05/11/11 H**	08/11/11 H	18/11/11 L	30/11/11 H	12/12/11 H	21/12/11 L	30/12/11 H	Comments
Black-headed Gull (amber)					1		1	Occasionally feeding on bare soil areas.
Buzzard						1	2	One hunting on 21/12, one perched in trees at eastern end on 30/12 (and another nearby in adjacent woodland)
Chaffinch	1	6	8	28	12	24		Often present in maize crops.
Chiffchaff							2	Feeding in hedgerow, N side of railway.
Dunnock (amber)		2			2	1	3	In hedges, but often feeding in low bramble and other vegetation in middle of site.
Goldfinch			2		1		2	Most records of flyovers.
House Sparrow (red)					8			Near houses in south-west corner of site, and using bushes along railway corridor.
Kestrel (amber)		1		1	1		1	Female regularly hunting, usually at eastern end of site, but close to farm on 30 December.
Linnet (red)	20	26	16	22		35	48	Regularly feeding on an area of fairly bare soil with scattered weeds.
Meadow Pipit (amber)	3	8	6		1	21	15	Using whole of site except Brassicas
Pied Wagtail	3		7	5		6	9	Usually feeding on same area as Linnets.
Reed Bunting (amber)					1		1	Flushed from maize
Skylark (red)	4	1	6	5	5	25	27	Using whole of site except Brassicas
Song Thrush (red)		1			2			Occasionally feeding within crops and other vegetation.
Stock Dove (amber)		2			15	19	25	Flock briefly feeding on site, but mainly present on adjacent land to north-east.

* Birds of Conservation Concern (Eaton *et al.* 2009), amber and red listed species.

** Tide state during survey H=High L=Low

Evaluation

- 5.1.8 The western part of the site is considered to be of **value within the Zone of Influence** for local bird populations. The arable field to the east of the site is part of a wider network of local farmland, which contains a population of declining farmland birds (mostly declining as a result of changing agricultural practices). These species are still however widespread, and not at high density within the wider landscape during the breeding survey work. During the winter the field contains reasonable flocks of farmland birds and is considered to be of **local value**.

5.2 Bats

Introduction

- 5.2.1 A number of buildings are present on site and these have been assessed for their potential to contain a bat roost by internal and external examination, and emergence survey work. This has been undertaken to the methodology outlined in **Technical Appendix 6**. Annotated **Photos 11-21** illustrate the internal and external features of the building in relation to the bat survey.

Manor Farm House & Farmyard Buildings

- 5.2.2 The main dwelling house is a typical semi-detached brick house with tiled roof and loft. The internal loft structure was examined in January 2011 and no evidence of bats was noted. There is some limited potential for the hanging tiles and soffits around the house to provide a roosting niche for a bat. The the house is shown at **Photo 11-17** below.



Photo 11 Manor Farm House is 2 semi-detached houses



Photo 12 All external surfaces of the structure were assessed for evidence of bats such as bat droppings. No evidence of use was noted.



Photo 13 All upper roof surfaces were inspected for signs of bats such as dropping and staining. Particular attention was paid to roof junctions and tile gaps. No evidence of use was noted externally.



Photo14: Internal Chimney Structure



Photo15 The internal roof structure was fully accessible with the roof void. The roof tiles are hung direct onto the timber structure with no felt or roofing membrane resulting in a cold and drafty loft space.



Photo 16 All surfaces of the structure were examined for evidence of bats such as bat droppings.



Photo 17 The upper roof had an accumulation of cobwebs again indicating lack of recent bat use.

- 5.2.3 The outbuildings assessed were considered to be of low potential for roosting bats, being either open sided, single frame wooden clad buildings, with metal roofs without loft structures, or wooden frame corrugated iron buildings (see **Photo 18** below) and having few niches in beams/wood work to provide some limited potential for bats. The south facing wooden cladding on the main 'L' shaped barn may provide limited potential.



***Photo 18** The outbuildings are predominantly of corrugated iron construction on a timber frame with limited roosting opportunity.*

Manor Farm Nursery Buildings

- 5.2.4 The buildings around Manor Farm Nursery are all Glass Greenhouses or single storey sheds with limited bat roost potential. **Photo 16** shows a typical view of the buildings in this part of the site.



Photo 19: Manor Farm Nursery

Northern Dwelling and associated Buildings

- 5.2.5 The Northern dwelling as a modern construction 1960's plus style brick house with concrete interlocking tile roof. The building was assessed for bat potential by internal and external examination. There are two areas of tight tongue and groove timber cladding with no suitable access opportunities, and the soffits are also tight fitting and well-sealed. All external surfaces were inspected for droppings and other evidence of use with no evidence recorded. The roof is mostly converted to dwelling accommodation; access was possible throughout the remaining 'bunker' roof spaces within the eaves. All surfaces were carefully inspected for the presence of bat droppings with no evidence noted. Overall there are very few access opportunities due to the construction method and it being a modern and maintained house (see **Photos 20-21**).



Photo 20: Northern Dwelling House

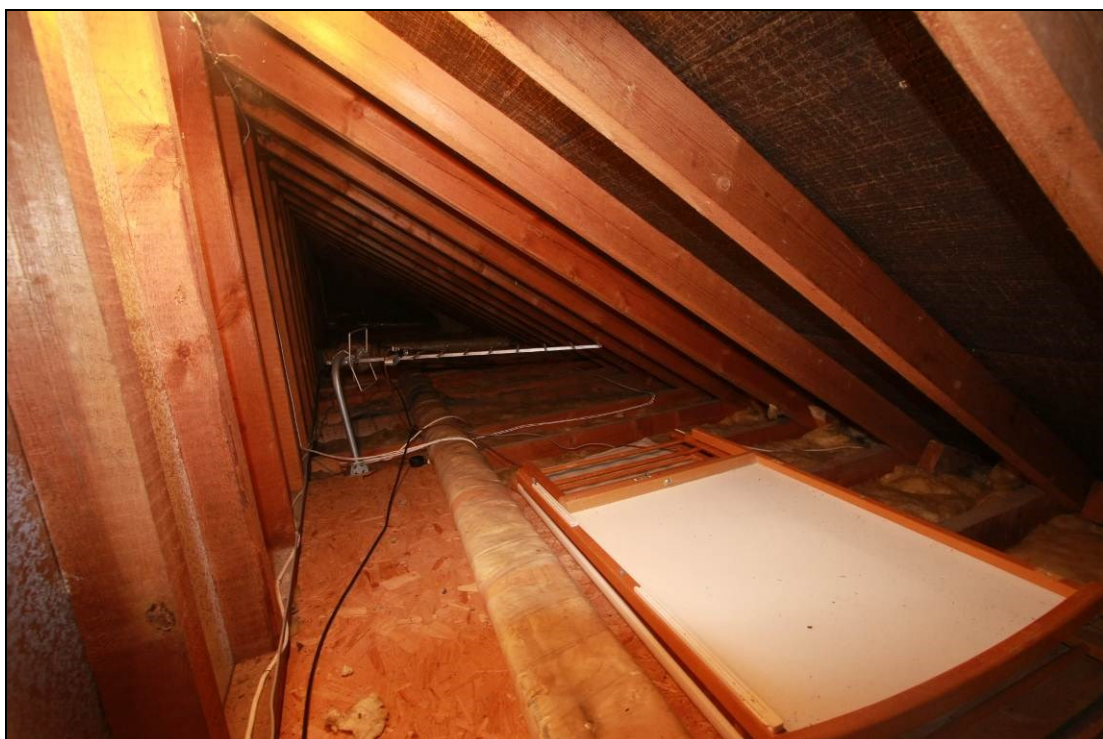


Photo 21: Internal Roof Voids in the converted roof space of the dwelling, used as storage with lighting and some boarding. No evidence of Bat use, extensive mouse droppings and two Wasps nests noted.

Trees

- 5.2.6 A number of trees are present on site and adjacent to the boundary of the site. These are generally considered to be still relatively young and free from damage and the associated

potential access for bat roosts. A number of the larger Oak trees have extensive Ivy covering the trunks making thorough examination for holes difficult but significant roosting features appear absent. These trees have been marked as lower potential category trees (Category 2b, see **Technical Appendix 6** for definitions) and are marked on **Figure 5** below.

Emergence Survey and Transect Survey

- 5.2.7 The habitats on site provide potential foraging and commuting opportunities for local populations of bats, with maturing hedges and semi-natural habitat within the field. The general landscape also provides reasonable quality bat foraging habitat across the network of field edges. The desk top data survey indicates that two species of bat Common Pipistrelle *Pipistrellus pipistrellus* and Brown Long Eared Bat *Plecotus auritus* have been recorded from within 1km of the site. With 5km of the site recent records of the Nationally Rare Bechstein's Bat *Myotis bechsteinii* have been made north of Emsworth. This species is an ancient woodland specialist that is likely to be present in remaining wooded patches of the former Forest of Bere, and is unlikely to occur on the current site given its open nature and history.
- 5.2.8 The site, including the two dwellings, outbuildings and the semi-natural features on site were surveyed during Spring and Summer 2011. A total of six visits were made to the site, three to the southern area of Manor Farm House and three to the northern area of Manor Farm Nurseries and the northern dwelling with two to three survey positions covered per survey. The results of these surveys are provided in **Table 4** below and at **Figure 4**.

Table 4: Survey Results

Date	Survey	Results
13/04/11	Emergence Survey, Manor Farm Dwelling & Outbuildings, Transect of Activity	2-3 x PP foraging around Manor Farm and outbuildings 30mins after sunset. PP foraging around Pond and eastern edge of Arable. No other species recorded.
26/04/11	Emergence Survey Manor Farm dwelling house and outbuildings	Similar results to the earlier survey with PP activity around the farmyard and buildings and around the pond in low numbers after dusk with no emergence
19/05/11	Emergence Survey Manor Farm Dwelling & Outbuildings, Transect of Activity	NN at 21:10 first bat. PP from west at 21:14 over outbuildings then round main Dwelling. PP foraging inside open fronted barn 21:21 on and off until 21:40. PS at northern boundary of farmyard with Nursery first bat in this area 21:35. ES foraging around outbuildings 21:38-21:45. Occasional PP & PS after this.
03/08/11	Emergence Survey Northern buildings around Manor Farm Nurseries Transect	PP 21:15 around Northern dwelling house from north no emergence from dwelling. PS 21:17 around Nursery and dwelling. NN 21:17 over Nursery. Occasional PP & PS foraging until 22:30 PE foraging along lane at 21:19
28/08/11	Emergence Survey Northern buildings around Manor Farm Nurseries Transect	First bat PP at 20:31 relatively early but not emerged. Foraging in northern dwelling garden. By 21:00 4 PP in northern Nursery and garden area with social calling. PS within Nursery area 20:45. ES brief pass Nursery eastern end at 21:12

29/09/11	Emergence Survey Northern buildings around Manor Farm Nurseries Transect	First bat PP at 19:03, 10mins after sunset arrived from the northern boundary and foraged around the house along NE boundary. This bat foraged in northern garden, occasionally with second for 25mins. At 19:18 NN passed NE to SW. Transect work showed PP and PS in low numbers around Manor Farm Nursery northern and eastern boundaries. 3x PS inc. social calling on northern boundary
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Key: PP= Common Pipistrelle, PS=Soprano Pipistrelle, My = Myotis sp, ES = Serotine, PA = (Brown) Long Eared Bat

- 5.2.9 A total of five species of bat have been recorded on site during the survey including Common and Soprano Pipistrelle *Pipistrellus pygmaeus*, Long Eared Bat, Noctule *Nyctalus noctula* and Serotine *Eptesicus serotinus*. All these species are widespread in southern England, although Serotine is confined to southern England. The bat use of the site is dominated by Common Pipistrelle, but with regular Soprano Pipistrelle and occasional use by the other species. Use of the site by Long-eared Bats may be under represented on account of their difficulty to detect.

Evaluation

- 5.2.10 The site is considered to be of local value to populations of bats. There are no recorded roosts on site, but the habitats within the farmyard, Nursery and gardens provide semi natural foraging habitat for local bat populations which use the site at moderate levels.

5.3 Badgers

- 5.3.1 The site was searched for signs of the potential presence of Badgers *Meles meles* using the methods outlined in **Technical Appendix 4**. No signs of Badgers were noted during the survey effort on site. A number of mammal tracks were noted along the northern boundary of the site and just off site, but no signs of Badgers were noted from them, most being dominated by signs of Roe Deer. A series of mammal holes are present in the artificial bank on the boundary of the farmyard and Manor Farm Nurseries. These were examined for signs of use by Badger during winter 2011, and again in summer 2011. Two of the holes are of sufficient size for Badger activity, but no evidence of Badgers was noted. Fox *Vulpes vulpes* hair indicated that at least one hole was used by Foxes in early 2011, and Rabbit evidence was noted. Badgers are in the local area and a record was provided in the data search within 250m of the site, just south of the railway crossing.

5.4 Other Protected Mammals

- 5.4.1 The potential for the European protected species Dormouse *Muscardinus avellanarius* to be present was also considered (See **Technical Appendix 1 & 2** for legal status). The data search shows no records within 1km the site, and the nearest known records are from along the A3(M) north west of Havant.

- 5.4.2 The woody habitats on site are considered of only marginal suitability for Dormice, and because of its very small size and recent development, only if there was significant adjacent woody habitat of potential value. However the adjacent farmland and even the railway banks are relatively open with well managed species poor hedges with gaps. This combined with the lack of local records means that Dormice are unlikely to be present on site.
- 5.4.3 Given the habitats present no other protected mammal species are considered likely on site. The potential for the protected species Water Vole *Arvicola terrestris* in the ditches along the hedges on the northern boundary and east of the site was considered. The ditches are only of marginal suitability for Water Vole, and would only be used as habitat should a good population exist elsewhere in the local area. The data search has not recorded any local populations of this species, no evidence was noted on the site visit, and it is unlikely they are present.
- 5.4.4 The site (and particularly the boundary features adjacent to the site) is likely to be of **Value within the Zone of Influence** to mammal populations, as part of the wider countryside.

5.5 Reptiles

Methodology

- 5.5.1 The initial ecological appraisal considered that potential reptile habitat is present on site, mostly along the edges of the Farmyard and arable, and around the Nursery. The desktop survey has shown that both Grass Snake *Natrix natrix* and Adder *Viper berus* have been recorded to the north of the site at Havant Thicket.
- 5.5.2 On this basis a total of c70 refugia were placed in the potentially suitable reptile habitat on site around all boundaries, with a handful in more open field locations, and then subsequently surveyed during suitable weather conditions according to the methodology outlined in **Technical Appendix 7**. The initial survey in spring 2011 only surveyed the Manor Farmyard area and not the wider countryside. A further survey in Summer 2011 surveyed the rough grassland around Manor Farm Nurseries, the northern dwelling house garden and also the hedgerow around the pond, east of the arable field.

Results

- 5.5.3 The results can be seen in **Table 5** below and at **Figure 5**. The only reptiles recorded during the survey were a low number of Slow Worm *Anguis fragilis*, widely scattered around the site, and a single record of Grass Snake around the pond in the arable farmland.

Table 5: Survey Results

Date	Time	Numbers
Spring Survey		
13-04-11	pm	Set up
05-05-11	am	AF = 1M; NN = 1sub
11-05-11	am	AF = 1M 1F 1sub
16-05-11	am	AF 2F 1sub

19-05-11	pm	AF = 1M 1F
24-05-11	am	AF = 1M 1F
26-05-11	pm	AF = 2F 2sub
28-05-11	am	AF = 1 sub
Summer Survey		
20-07-11	pm	Set up
06-08-11	Am	AF = 1 sub
12-08-11	A	0
28-08-11	Pm	AF = 1 F
08-09-11	Am	0
10-09-11	Pm	AF = 1 sub
13-09-11	Am	AF = 1 sub
29-09-11	pm	0

AF = Slow Worm; NN = Grass Snake; Ad=Adult, m=male, f=female, sub= subadult

Evaluation

- 5.5.4 Despite suitable habitat along most of the site boundaries very low numbers of reptiles were recorded, perhaps an indication that the site was formally more intensively managed. The site is considered to be of **value within the zone of influence to local value** for reptiles.

5.6 Amphibians

Methods

- 5.6.1 No waterbodies suitable for amphibians exist on the proposed development area. The ditch network are considered to only be marginally suitable as breeding habitat for amphibians as they all are likely to dry out in late spring annually. The nearest pond is noted as just over 180m from the proposed development area to the east within the wider farmland. This pond was constructed by the current residents of Manor Farm for water storage and irrigation, and is an open farm pond dominated by Reedmace, Reed Canary Grass with some introduced Water Lilly. The pond holds water year round and is fed by the ditches along the northern hedgerow boundary and the eastern hedgerow boundary off site. A pump is located in the pond resulting in draw down during dry periods when used for irrigation. The pond is roughly 25mx30m and c1m+ deep and is shown on **Photo 22** below.
- 5.6.2 The legally protected Great Crested Newt *Triturus cristatus* is not known from the local area, but the data search has provided records from about 2km north the site, and about 5km from the site to the east.



Photo 22: Pond Eastern end of Arable Field

- 5.6.3 A survey of the pond was undertaken to the methodology outlined in **Technical Appendix 8** during spring 2011

Results

- 5.6.4 The results of the survey work over four dates is provided in **Table 6** below. The survey was undertaken over five dates using various methods. No Great Crested Newts were recorded. The pond held moderate numbers of Smooth Newt *Triturus vulgaris* (see **Photo 23**). No amphibians were noted in ditches on site.

Table 6: Great Crested Newt Survey Spring 2011

Date:	13/04/2011	26-27/4/2011	28-29/4/2011
Approx. Air Temperature	13-11c	14-12c	14-12c
Methods: <i>Te</i> =Terrestrial, <i>B</i> =Bottle Trap, <i>O</i> =Observations, <i>T</i> =Torching, <i>E</i> =Egg Searching, <i>ES</i> =Egg Strip <i>N</i> =Netting	O,T,E	E,B,N	E,B,T
Smooth Newt:			
Male	1	6	2
Female	1	4	1
Imm			



Photo 24: Smooth Newts from Pond

Evaluation

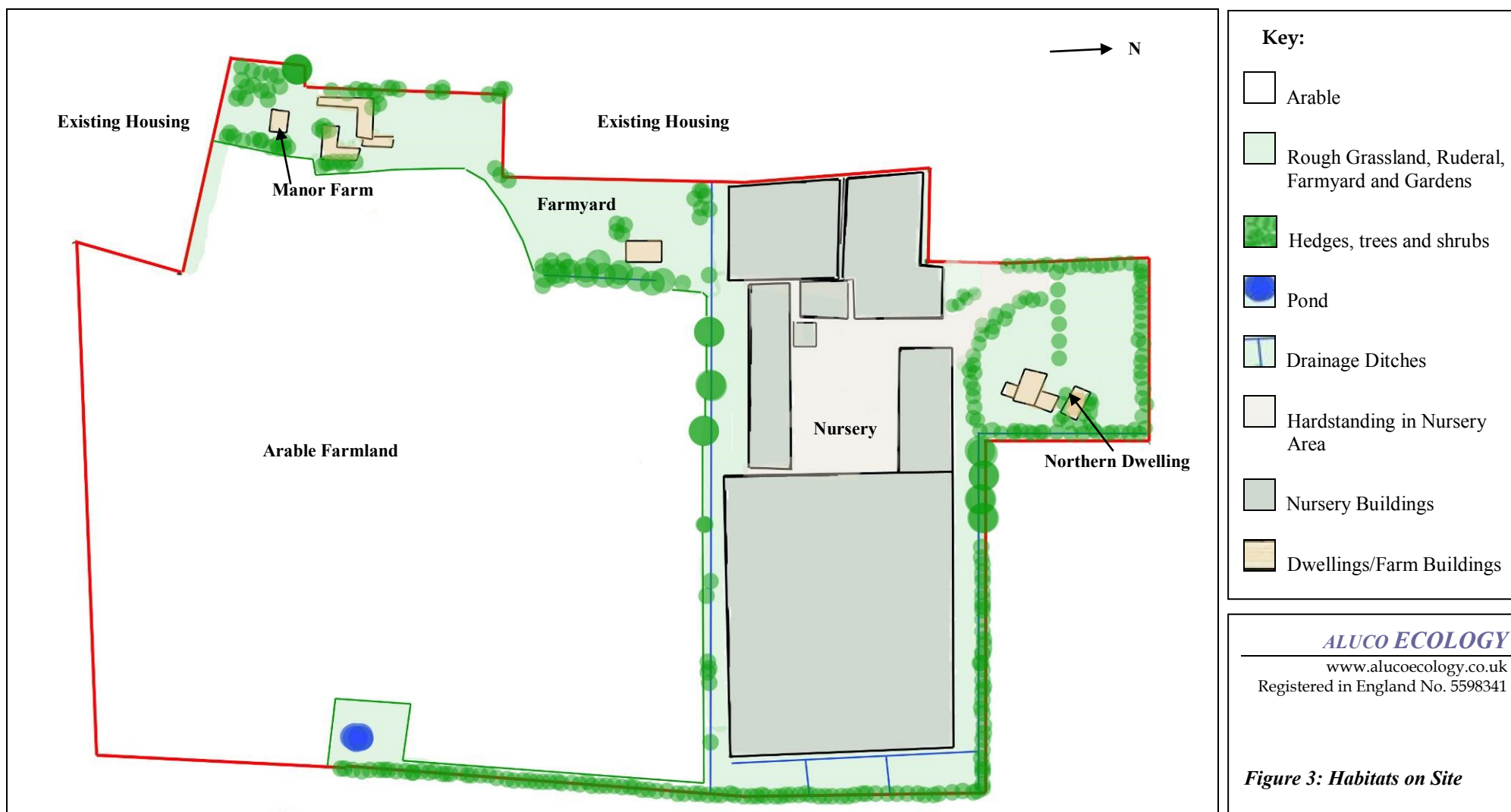
- 5.6.5 The habitats on site are considered to be of **Value within the Zone of Influence** for amphibians.

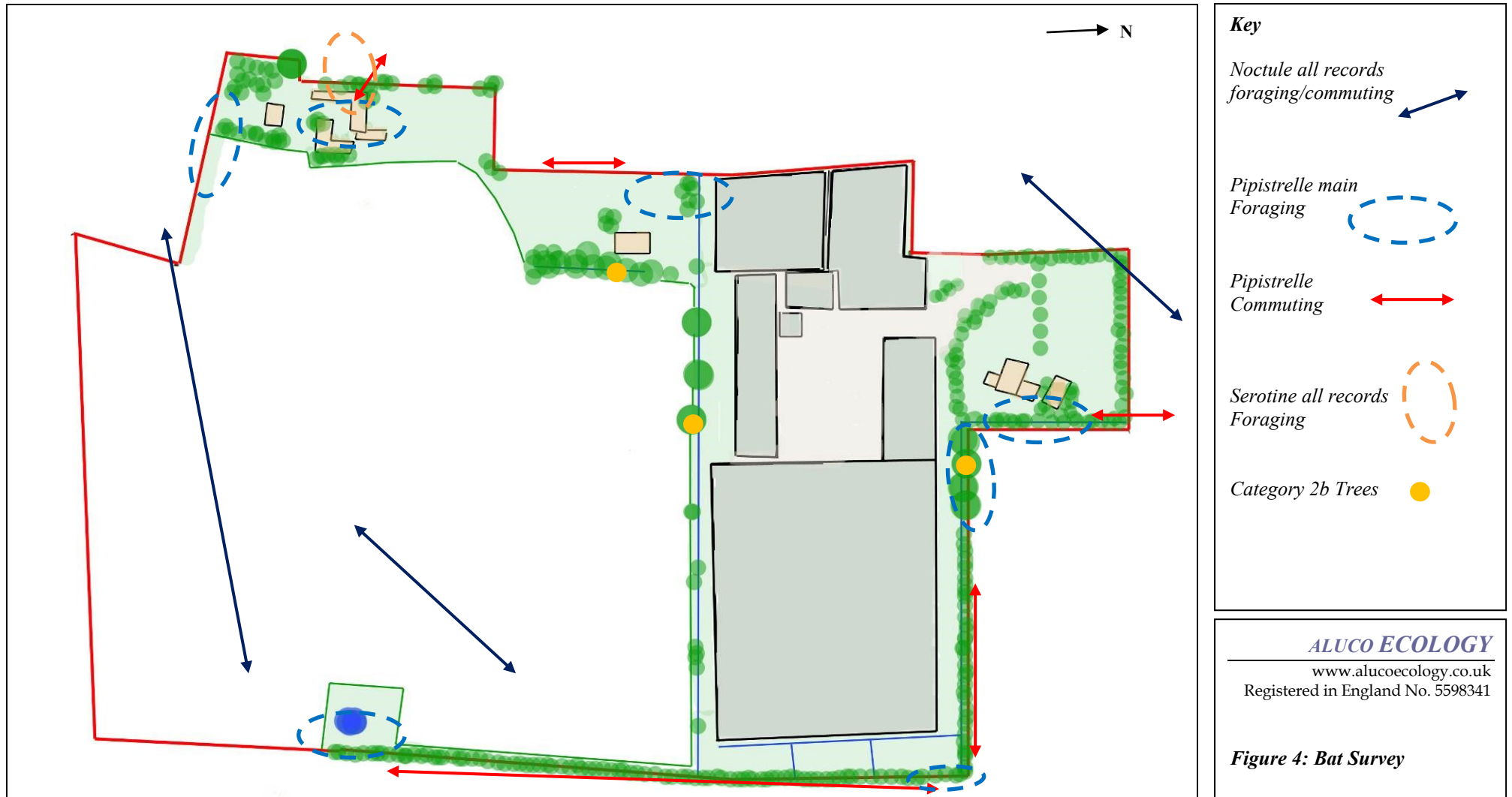
5.7 Invertebrates

- 4.4.15 A number of commoner invertebrate species are likely to use the site. The legally protected Stag Beetle *Lucanus cervus* is has been recorded within 1km of the site, but there is only limited dead wood habitat on site.

5.8 Other Protected Species

- 4.4.16 No other protected species are considered present within the zone of influence which would be impacted by the development proposals. On the basis of the data and site visit information provided above the site is likely to be of **Value Within the Zone of Influence to Local Value** for protected species.







6.0 BRIEF ASSESSMENT OF LIKELY IMPACTS WITHOUT MITIGATION

6.1 Introduction

- 6.1.1 In view of the predicted activities and the resultant biophysical changes associated with the proposal, as described in Section 3, this section identifies the main potential ecological impacts within the predicted zone of influence, those considered likely to arise in the absence of mitigation. This exercise provides focus for recommendations for further scheme design and mitigation.

6.2 Habitats & Species on Site

Potential Impacts on Designated Sites

- 6.2.1 The development is within proximity to the coastline which contains sites designated for wetland migratory and non-breeding bird species. Survey work in the adjacent arable farmland has not recorded use of the area by waterfowl. The proposed development contains a large area of open space for formal and informal recreation as a part of the scheme proposals for new and existing local residents. This is subject to a landscape and open space strategy with ecological mitigation.

Potential Impacts on Habitats and Vegetation

- 6.2.2 The majority of habitats on site within the proposed development area will be developed and therefore lost as a part of the scheme. The habitats are of low intrinsic value and no significant impacts are predicted. The potential loss of a small amount of the declining arable plant Corn Spurrey is not considered significant.

Potential Impacts on Birds

- 6.2.3 A number of garden trees, farmyard trees and scrub would be removed by the scheme. If this is removed during the breeding season there is potential to destroy bird nests, which would be contrary to Section 1 of the Wildlife and Countryside Act 1981 (as amended), see **Technical Appendix 2**. The land take of a small amount of the main arable field for the scheme and associated open space area will reduce the potential habitat for the nesting BAP species Skylark. This is considered to be a minor adverse impact, although there will still be habitat retained in the remainder of the field and adjacent fields.
- 6.2.4 The development will also see the loss of an active Sparrowhawk nest. This is not a species of conservation concern and has increased in the UK over the last 30 years. A likely second nest site for this pair will be retained in the Oaks on the northern boundary, north of the Nursery buildings.
- 6.2.5 The majority of the farmland to the east of the site will be retained in situ without public access. The value of this farmland for wintering birds should therefore not be affected by the scheme.

Potential Impacts on Bats

- 6.2.6 No roosts were noted during survey work. The creation of boundary features along the eastern edge of the development will ensure that commuting routes and foraging areas around these routes are retained (these being as new garden and open space areas).
- 6.2.7 There is potential for street lighting to affect foraging and commuting along the boundary features. Without mitigation this is considered to be a minor adverse impact.

Potential Impacts on Reptiles & Amphibians

- 6.2.8 There is limited habitat within the farmyard and Nursery and gardens on site for populations of reptiles to be present. Two species of reptile have been recorded on site, with one species within the proposed development zone at a low density. All reptiles are protected from harm by the Wildlife & Countryside Act 1981 (as amended). Development without mitigation will therefore be likely to cause an adverse impact on local reptile populations. The pond and its environs will be retained in situ.

7.0 OPPORTUNITIES ECOLOGICAL ENHANCEMENT AND MITIGATION

7.1 Introduction

- 7.1.1 The potential for impacts on an unmitigated scheme was considered in Section 6, and further survey and mitigation recommendations are provided to ensure that protected species are also considered in construction and operation of the site.
- 7.1.2 The location of the site and the scheme design provides for potential to provide enhancements to the local ecology. Suggestions and recommendations are outlined below, including broad scheme design recommendations.

7.2 Mitigation for Protected Habitats, Species and Species of Concern

Vegetation

- 7.2.1 Any retained hedges and trees should be protected during construction to current industry standards to ensure that construction material isn't stored around the root systems and they are not compacted by machinery. If the population of Corn Spurrey flowers again before or during construction period and it is to be lost as a result of the scheme, seed the seed bank can be collected for translocation to the arable farmland retained as part of the scheme.

Birds

- 7.2.2 All bird species are protected at the nest. Any development that could affect nesting birds should take place outside the bird nesting season, usually considered to be from March to August.

Bats

- 7.2.3 The survey work did not find any evidence of roosting bats in the buildings on site. There will be a loss of low potential buildings and a single Category 2b tree will be removed (the Oak in the Farmyard). A safe felling procedure is provided in **Technical Appendix 6** for the removal of this Oak to best practice guidelines.
- 7.2.4 It is recommended that a minimum of six bat features should be incorporated into dwellings along the eastern edge of the proposed development (examples are provided in **Technical Appendix 9**). In addition to this a further six Schwegler type bat boxes should be installed on retained mature trees around the wider site.
- 7.2.5 The scheme should avoid allowing any scheme lighting to spill onto the hedges and boundary features of the site as these are likely to function as local mammal corridors.
- 7.2.6 The landscaping of the open space areas within the scheme should have regard to the features set out in section 7.3 below.

Badgers

- 7.2.7 A Badger survey should be repeated prior to any commencement of construction on the site. There are records of Badgers locally and there is sufficient potential on site in bund between the farmyard and the Nursery, on hedge banks and off site (eg along the railway) for Badgers to occupy the site/local area in the future.

Reptiles

- 7.2.8 Reptile habitat exists within the proposed development area, principally around the edges of the gardens of Manor Farm house and the northern dwelling, in the farmyard and along the edges of the Nursery buildings. Only very low numbers of reptiles have been recorded using this habitat. Survey indicates that habitat retained in the wider site is also used at a very low density.
- 7.2.9 There is therefore potential to translocate the population of reptiles from the proposed development area to the retained areas prior to construction to ensure that no reptiles are harmed. The length of the eastern boundary provides sufficient habitat of moderate quality including banks, hedges, rough grassland and developing scrub in a 5m strip along the eastern boundary from the pond to the northern end of the nursery building (see **Figure 6** below).
- 7.2.10 The methodology for translocation of reptiles on site is described in **Technical Appendix 10**. The methodology will be undertaken to best practice guidelines outlined in this Appendix. This will involve the following:
- placement of artificial refugia within the capture area at high density;
 - manipulation of habitat to increase capture rates;
 - translocation to suitable habitat within the wider retained site, with fencing;
 - commitment to management of retained habitat for reptiles;
 - capture of reptiles until a total of at least 3-5 blank visits are made;
 - destructive search of the capture area to the guidelines.

Fox

- 7.2.11 Foxes are present on site, and there are old earths in the northern corner of the Farmyard. Any active Fox earth is likely to be affected by the development will be closed down prior to works commencing, and the outside the season when there are dependant young (Feb-June).

General

- 7.2.12 Personnel are to be briefed when working on site as to the potential presence of wildlife and the need for special care when undertaking vegetation removal and the protection of features such as hedges / trees. Ensure site personnel are aware of a procedure to follow in the event of discovery of a protected species such as reptiles or bats.

7.3 Potential for Ecological Enhancement

- 7.3.1 Provision of native locally sourced species within the landscaping of the scheme and particularly within the open space area to the eastern end of the scheme will provide new habitats for wildlife on the edge of the site. The natural habitats should extend to the offsite boundaries to provide suitable corridors for wildlife. Scheme lighting should be directed away from this area.
- 7.3.2 Two new ponds will be created on site as part of the surface water strategy. These ponds will be designed to have shallow edge profiles and will have surrounding area planted with native species vegetation mixes.
- 7.3.3 There is potential to provide benefits to the local bat and bird communities by providing new roosting and nesting opportunities, through the provision of bat and bird boxes that can be located in the mature Oak trees just off site or in the building to be constructed.
- 7.3.4 The eastern boundary hedge, the ditch line and the 5m strip that is to be managed as retained reptile habitat should be left uncut, with only annual or every two years cutting of the encroaching brambles and scrub to no lower than 10-15cm. Some scrub development is recommended, with an aim of a mosaic of 70% rough grassland and 30% developing scrub. The hedge along this area should be reduced to being cut every three years in an 'A' shape to provide additional habitat at the base of the hedgerow and bank.
- 7.3.5 **Figure 6** below shows enhancement potential. This will be developed in a management plan for the retained and created open areas, which will include ecology prescriptions and management options.



Grassland areas within the former arable or under nursery glasshouses will be sown with an appropriate wildflower meadow mix.

Grassland management within the open space should include areas along the edges of the grasslands where no grassland cutting takes place in order to create an edge habitat with woody vegetation that will enhance the wildlife value of the informal open space.

Pond creation will involve shallow graded levels seeded with a native wetland species mix.

Reptile translocation area to be maintained as rough grassland along the eastern boundary hedge and bank. A minimum 5m strip of rough grassland should be retained, with more existing habitat present within the northern end behind the nursery.

Retention of existing large Oak trees and other boundary woody vegetation. This vegetation can be enhanced through native planting with woody species such as Hazel, Hawthorn, Field Maple, Grey and Common Willows, Elder and Oak. Formal and informal pathways are to be created through the site.

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Figure 5: Mitigation and Enhancement

8.0 CONCLUSIONS

8.1 Compliance with legislation

- 8.1.1 The initial survey work has shown that the habitats on site are of low intrinsic value, and that there are low populations of protected species including, nesting birds, Slow Worm and foraging and commuting bats. Mitigation is proposed in order to reduce and offset the potential for impacts on these species groups.

8.2 Opportunities for Ecological Gain

- 8.2.1 A number of options are put forward for providing ecological gain to the development proposals. The implementation of these or other ecological gains as part of the development will ensure that the provisions of Government policy and the saved policies in the Havant Borough Local Plan (See **Technical Appendix 3**) are complied with.

9.0 REFERENCES

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