

ecological support, management &
solutions



Land at Blendworth Crescent Ecological Survey

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Report Prepared by

Tristanna Cornwell BSc (Hons)

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Map I Protected Sites

Executive Summary

The site is located to the south of Blendworth Crescent currently comprises of public open space with a disused area of hardstanding once occupied by a play area. Currently utilised by a low number of dog walkers the site is under continual management to fit its amenity purpose. Because of this the main body of the site is considered to be of negligible to low ecological value. The scrub and mature trees around the boundary of the site possess the highest levels of diversity and general ecological value. Because of this the majority of this scrub area and all trees are set to be retained. The site supports a low population of Slow Worms and is a County and Local value for commuting and foraging bats respectively. In line with this measures have been proposed to ensure they are not negatively impacted upon. In addition a significant Serotine roost has been noted offsite. A separate Mitigation Strategy has been developed to ensure that proposals do not indirectly impact the bats within this roost. Finally a number of ecological features have been recommended to enhance the development so that it will positively contribute towards local biodiversity and conservation of protected species.

1.0 INTRODUCTION

1.1 Brief

ecosupport Ltd were commissioned by Adrian Legg of Portsmouth City Council to carry out a Phase I Survey Ecological Survey and associated follow up work at the site located at Blendworth Crescent. The objectives of these surveys were as follows:

- Identify current land use and habitat types
- Identify any priority habitats
- Identify any signs of protected species and potential features that may support them
- Identify all relevant legislation and policy
- Carry out further survey work as appropriate
- Assess the ecological value of the site
- Make recommendations for appropriate enhancements

1.2 Site Description

The site is located to the south of Blendworth Crescent (Grid Reference SU 71403 07354). The site currently comprises of public open space. Trosnant Junior School and its associated infrastructure is located to the south of the site. The remaining periphery is bounded by housing associated with Blendworth Crescent, Chilcombe Close and Stockheath Lane to the North, East and West respectively. The immediate locality is highly residential due to the site being situated within the town of Havant (Figure 1).

Figure 1. Aerial image of the site.



1.3 Scope of Proposed Development

The proposals involve the development of the site to make way for new housing.

2.0 RELEVANT LEGISLATION AND POLICY

2.1 Legislation

2.1.1 *The Conservation of Habitats and Species Regulations (2010)*

This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into UK domestic law. It provides protection for sites and species deemed to be of conservation importance across Europe. It is an offence to deliberately capture, kill or injure species listed in Schedule 2 or to damage or destroy their breeding sites or shelter. It is also illegal to deliberately disturb these species in such a way that is likely to significantly impact on the local distribution or abundance or affect their ability to survive, breed and rear or nurture their young.

2.1.2 *The Wildlife and Countryside Act (1981) (as amended)*

This is the primary piece of legislation by which biodiversity is protected within the UK. Protected fauna and flora are listed under Schedules 1, 5 and 8 of the Act. They include all species of bats, making it an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost. Similarly this Act makes it an offence to kill or injure any species of British reptiles and also makes it an offence to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built).

2.1.3 *The Countryside and Rights of Way Act (2000)*

This Act places a duty on Government Ministers and Departments to conserve biological diversity and provides police with stronger powers relating to wildlife crimes.

2.1.3 *Natural Environment and Rural Communities Act (2006)*

This places a duty on authorities to have due regard for biodiversity and nature conservation during the course of a development.

2.2 Policy

The development would seek to comply with relevant Planning Policy at a local, regional and national level.

2.2.1 *National Planning Policy and Framework (2012)*

This sets out the Government's vision for biodiversity in England. It states that the planning system should maintain, enhance, restore or add to biodiversity and geological conservation interests. Key principles of the framework include the creation, protection, enhancement and management of networks of biodiversity, the preservation, restoration and recreation of priority habitats and ecological networks and the recovery of priority species populations, including sections on legally protected species.

2.2.2 *Havant Borough Core Strategy (2011)*

Part of the 'Vision for Havant Borough in 2026' is to protect and enhance biodiversity. Similarly policy CS11: Protecting and Enhancing the Special Environment and Heritage of Havant Borough states that planning permission will only be granted when development protects habitats and features of biological interest and prevents the fragmentation of existing habitats.

3.0 METHODOLOGY

3.1 Desk Based Survey

A data request was submitted to Hampshire Biodiversity Information Centre to ascertain the proximity of nearby designated sites and any records of protected species.

3.2 Zone of Influence

The approach of the CIEEM guidelines (2006) is to assess potential impacts to all features of ecological interest that could be affected by a scheme. As a scheme may have effects beyond its site boundaries, it is important to identify the 'zone of influence' of the scheme and to assess the potential for significant impacts throughout this area.

Quantifying this area is complex and is rarely limited to the development site or some set distance from the project area. The zone of influence is often dependent on the impacting factor (both direct and indirect) and the affected resource. Certain impacts associated with a develop can be calculated using various factors, for example for water pollution you can use the volume and flow of that water body, the nature of the pollutant and the chemical characteristics of the water body and with air pollution models can be used. You cannot accurately predict factors associated with inhabitants of a new development. Although the area of influence will, in general, be localized and restricted to the project footprint and immediate surroundings, land use is more complex. For example how people will utilize areas for recreation and how far they will travel. Ecological resources are impacted by the zone of influence of the above factors combined along with others.

3.3 Phase I Survey

3.2.1 Assessment of Habitats

The initial site walkover was carried out by Tristanna Cornwell and Nicky Britton-Williams of ecosupport Ltd, on the 12th of March 2015. This incorporated a visual assessment of the site and the surrounding landscape, loosely following the methodology outlined within the Joint Nature Conservation Committees (JNCC) *Phase I habitat survey handbook* (2003). The habitats present were described, paying particular attention to their potential to support protected species.

As the initial site survey took place in March, outside of the optimum survey season, the surveyors returned to carry out a detailed assessment of the vegetation on site on the 8th of June 2015. All species noted were recorded.

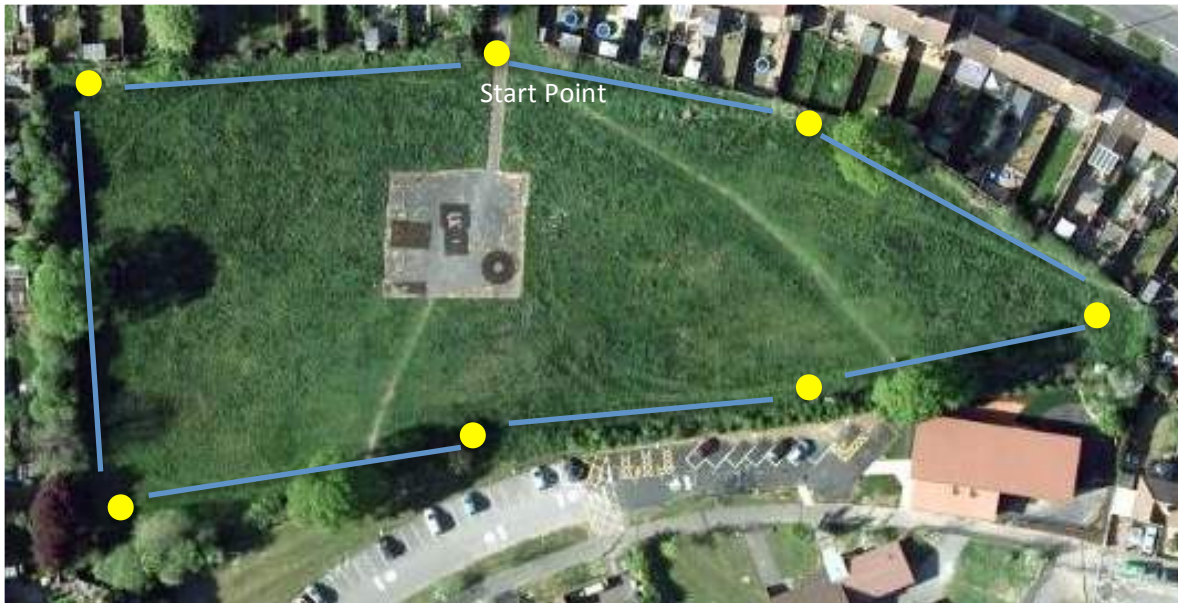
3.4 Phase II Bat Surveys

The site is classified as 'Small' consisting of 'Low quality habitat' as per the BCT guidelines. As a result two transect surveys were carried out, in order to inform the lighting strategy.

The transect surveys involved experienced surveyors of ecosupport Ltd. on foot carrying bat detectors along a route throughout the site. Surveyors walked at a constant speed recording bat passes, and associated details such as species, time and direction of flight. Also echolocations for subsequent analysis were logged. Spot counts were also incorporated within the survey design. This involved standing at set points along the transect for an allotted period of time and recording all activity. The transect route and location of spot

counts were decided prior to surveys getting underway through the use of aerial imagery (**Figure 2**) and a plan was issued to the surveyor. During the first survey, surveyors went clockwise around the site. During the second they swapped direction as walked anti-clockwise to record bat use of the site at different times. The surveys started just before sunset and continued for two hours.

Figure 2. Transect Route.



3.5 Reptile Survey

The initial site walkover identified habitat that was considered suitable for reptiles. Therefore a full reptile survey was carried out at the site during April and May of 2015 in accordance with best practice guidance (Froglife, 1999). The aim of the survey was to establish the presence/likely absence of reptiles on the site. Artificial refugia were distributed evenly across the site on 16th April 2015 (**Figure 4**). Once sufficient time had passed to allow it to bed in (seven days), the refugia were checked seven times during suitable weather conditions by experienced reptile workers. The species, approximate life stage and sex of any reptiles found was recorded. Surveyors utilized the survey as an opportunity to carry out a transect search for reptiles which involved being vigilant and visually searching for reptiles whilst walking between points.

4.0 SURVEY RESULTS

4.1 Desk Based Search

4.1.1 Protected Sites

The site was located within 4km of the following sites designated for their nature conservation value (see attached for map of the location of these):

Chichester & Langstone Harbours Ramsar and Special Protection Area (SPA) (2.3km southeast)

This site is designated as a wetland of international importance under Article 4.2 of the Habitats Directive by regularly supporting at least 20,000 waterfowl. The site supports populations of European importance for a number of species listed under Annex 1 of the EU Habitats Directive, such as Little Tern *Sterna albifrons* and Sandwich Tern *Sterna Sandvicensis* during the breeding season, Little Egret *Egretta garzetta* and Ringed Plover *Charadrius hiaticula* on passage, and Bar-tailed Godwit *Limosa lapponica* and Little Egret *Egretta garzetta* over winter.

Langstone Harbour Site of Special Scientific Interest (SSSI) (2.2km southwest)

A tidal basin with extensive low-water mud flats. One of the largest areas of mixed saltmarsh on the south coast, with an extensive Cord-grass *Spartina anglica* marsh in an advanced state of degeneration and extensive eelgrass beds (*Zostera angustifolia* and *Aostera noltii*). The Harbour is of international importance as a rich intertidal system (in the top 20 in Britain), supporting high intertidal invertebrate densities alongside large populations of migrant and overwintering waders and wildfowl for example Dunlin *Calidris alpina*, whose numbers often exceed 30,000 individuals (6% of the British overwintering population). The total numbers of waders at this site often exceed 40,000; Langstone Harbour, Portsmouth Harbour and Chichester Harbour form a single, coherent ecosystem which is among the 10 most important intertidal areas for waders in Britain.

Solent Maritime Special Area of Conservation (SAC) (2.54km southeast)

The Solent Maritime encompasses a number of Annex I habitats, combining to afford it SAC status; estuaries (priority reason for selection), *Spartina* swards (priority), Atlantic salt meadows (priority), sandbanks which are slightly covered by sea water all the time, mudflats and sandflats not covered by sea water at low tide, coastal lagoons, annual vegetation of drift lines, perennial vegetation of stony banks, Salicornia and other annuals colonising mud and sand, and white dunes.

The Solent encompasses a major estuarine system on the south coast of England, with four coastal plain estuaries (Yar, Medina, King's Quay Shore, Hamble) and four bar-built estuaries (Newton Harbour, Beaulieu, Langstone Harbour, Chichester Harbour). The Solent and its inlets are unique in Britain and Europe for their hydrographic regime of four daily tides and the complexity of marine and estuarine habitats present. Sediment habitats include extensive estuarine flats, often with intertidal areas supporting Eelgrass *Zostera sp.* and green algae, sand and shingle spits, and natural shoreline transitions. The mudflats range from low and variable salinity in the upper reaches to very sheltered, almost fully marine muds in Chichester and Langstone Harbours. Unusual features include the presence of very rare sponges in the Yar estuary and a sandy 'reef' of the polychaete *Sabellaria spinulosa* on the steep eastern side of the entrance to Chichester Harbour. Solent Maritime is the only

site for Smooth Cord-grass *Spartina alterniflora* in the UK and is one of only two sites where significant amounts of Small Cord-grass *S. maritima* are found. Townsend's Cord-grass *S. x townsendii* and Common Cord-grass *S. angelica*, all four taxa thus occurring in the Solent in close proximity. The Solent also contains the second largest aggregation of ungrazed Atlantic salt meadows in south and southwest England. As a whole the site is less truncated by man-made features than other parts of the south coast and shows rare and unusual transitions to freshwater reedswamp and alluvial woodland as well as coastal grassland.

Warblington Meadow SSSI (2.55km southeast)

An unimproved grazing marsh adjoining Chichester Harbour of particular importance for its distinct graduation from freshwater, base-rich marsh to old reclaimed saltmarsh and for its rich associated flora, with 158 species of flowering plant. A small bed of reed *Phragmites australis* and a clear, unpolluted stream lined with English Oak *Quercus robur*, Alder *Alnus glutinosa* and Willow *Salix sp.* add additional habitat diversity.

Hayling Billy Local Nature Reserve (LNR) (2.96km south)

Protected due to its abundance of rare plants, butterflies and small birds, and for its views of Langstone Harbour.

West Hayling LNR (3.16 km south)

Hectares of intertidal mudflats contain a huge assemblage of marine invertebrate life supporting both permanent and migratory seabirds.

Chichester Harbour SSSI (3.19km southeast)

A large coastal estuarine basin with extensive mud and sand flats at low water, with a wide range of intertidal and associated terrestrial habitats present. The range of habitats on site support important plant communities. The site is of particular importance for its international densities of waders, wildfowl and breeding bird populations, both within the Harbour and the surrounding pastures and woodlands, such as Ringed Plover *Charadrius hiaticula*, Curlew *Numenius sp.* and Greenshank *Tringa nebularia*, with Bar-tailed Godwit *Limosa lapponica* numbers of international importance.

West Hayling LNR (3.21km south)

Intertidal mudflats. Home on a permanent and migratory basis for tens of thousands of seabirds and a large assemblage of marine invertebrates.

South Downs National Park (3.61km north)

The South Downs National Park has a vast array of wildlife habitats, many of which are recognised as National and European priorities. Over 85% of the Downs is classified as farmland, which includes wildlife habitats such as grassland, arable land, and hedgerows. Chalk grassland, formed as a result of sheep farming, is one of the iconic habitats of the National Park, much of which has been ploughed and has since remained in cultivation. West of the River Arun, the Downs are more wooded with features such as the yew groves of Kingley Vale, northwest of Chichester.

Species present in the National Park include Otter *Lutra lutra* and Barn Owl *Tyto alba* as well as species such as the Barbastelle Bat *Barbastella barbastellus*, the Chalk Carpet Moth *Scotopteryx bipunctaria* and Sundew *Drosera sp.*, a carnivorous plant.

The National park includes a number of rare and threatened species including the Bee Orchid *Ophrys apifera*, Adonis Blue Butterfly *Polyommatus bellargus* and Nightjar *Caprimulgidae europaeus*.

Brook Meadow (Emsworth) LNR (3.84km southwest)

5 acres of grassland, surrounded by woodlands and flanked by two streams. European Water Vole *Arvicola amphibius* are present in the river.

Farlington Marshes LNR (4.05km southwest)

125 acres of botanically rich grazing marsh on the shore of Langstone Harbour. A site internationally important for the bird populations it supports, as well as butterflies and botanical interest.

Hazleton Common LNR (4.43km northwest)

26 ancient woodland species have been recorded as well as Essex, Small and Grizzled Skipper (*Thymelicus lineola*, *Thymelicus sylvestris* and *Pyrgus malvae*) butterflies and 43 species of spiders including 3 nationally notable and one not found in England before. Good breeding populations of Stonechat are present with Kestrel *Falco tinnunculus*, Sparrowhawk *Accipiter nisus* and Buzzard *Buteo buteo* also recorded. The main pond contains Great Crested Newts *Triturus cristatus*.

Solent & Isle of Wight Lagoons (SAC) (4.5km southwest)

Annex I habitat, coastal lagoon, is the primary reason for selection of this site. The lagoons show a range of salinities and substrates, ranging from soft mud to muddy sand with a high proportion of shingle, which support a diverse fauna including large populations of three notable species: the nationally rare foxtail stonewort *Lamprothamnium papulosum*, the nationally scarce lagoon sand shrimp *Gammarus insensibilis*, and the nationally scarce starlet sea anemone *Nematostella vectensis*.

Eames Farm (4.52km southeast)

Extensive coastal grazing marsh of national and international importance for its flora and bird life.

In addition the following Sites of Importance for Nature Conservation (SINC) were identified:

SINC Name	Distance	Reason for designation
Thicket Bottom	2.13km NE	Pasture woodland and wooded commons.
Barton's Copse & The Slip	2.33km NE	Ancient semi-natural woodland
Littlepark Wood (East)	1.91km SW	Ancient semi-natural woodland and Yew woodland, which is of restricted distribution.
Hulbert Road Meadow	2.02km NW	Grasslands which have become impoverished through inappropriate management but which retain sufficient

		elements of relic unimproved grassland to enable recovery and Fens, flushes, seepages, springs, inundation grasslands etc. that support a flora and fauna characteristic of unimproved and waterlogged (seasonal or permanent) conditions.
Neville's Park East Wood	2.16km NW	Ancient semi-natural woodland.
Neville's Park Areas 4-10	1.78km NW	Surviving areas of ancient semi-natural woodland and areas of semi-natural woodland comprising of restricted habitats. Also supports agriculturally unimproved grassland and grasslands which have become impoverished through inappropriate management but which retain sufficient elements of relic unimproved grassland to enable recovery. The site supports Meadow Brome (<i>Bromus commutatus</i>).
Neville's Park Areas 2 & 3	2.06km NW	Agriculturally unimproved grasslands
Bushy Lease	1.86km NW	Ancient semi-natural woodland.
Manor Farm A	1.84km SW	Regularly supports Dark-Bellied Brent Geese (<i>Branta bernicla bernicla</i>).
The Warren, Havant	2.19km NW	A significant element of ancient semi-natural woodland is present as well as woodland comprising of restructured woodland habitat.
Thicket Lawn	1.71km NE	The site consists of agriculturally unimproved grassland supporting Smooth Brome (<i>Bromus racemosus</i>).
Great Copse, Havant	1.17km NE	Ancient semi-natural woodland.
High Lawn	1.67km NE	The site contains an element of semi-natural ancient woodland.
Thicket Bottom Woods & Lake	2.06km NE	Ancient semi-natural woodland.
Wade Court Park	2.07km SE	Supports a significant colony of Little Egret (<i>Egretta garzetta</i>).
Lower Beacon Field	2.02km NE	Semi-improved grasslands which retain a

		significant element of unimproved grassland.
Wakefords Copse, Havant	1.88km NE	Ancient semi-natural woodland.
Battins Copse	0.67km NE	Ancient semi-natural woodland.

4.1.2 Protected Species

Within 2km of the site, Stag Beetle (*Lucanus cervus*), Slow Worms (*Anguis fragilis*), Grass Snake (*Natrix natrix*) and Adder (*Vipera berus*) were identified along with mammals such as eight species of bat, Water Vole (*Arvicola amphibius*) and Badgers (*Meles meles*) (see **Appendix I** for details).

4.2 Zone of Influence

4.2.1 Construction Phase

Change in Land Use

The change of use of the site will result in the physical structure of the present site being altered by the proposed development. Site preparation activities will include earthworks and earth stripping. Therefore the zone of influence is predicted to extend across the development footprint but no further.

Noise Pollution

Noise disturbance occurs as a result of plant operation, traffic movements, and movements of site personnel associated with the continued extraction, crushing, screening and tipping within the application area.

When ground cover or normal unpacked earth is present between the source and receptor, the ground becomes absorptive to noise energy and is called a soft site. This can reduce in-air noise over distance. As these conditions are present on site it is considered that the noise from construction will not travel far past the development boundary. This will be aided by the presence of screening vegetation around a large proportion of the site boundary. The retention of this will reduce noise levels outside of the development footprint. It is therefore considered that the zone of influence for noise will be within the development boundary itself and 50meters outside of the boundary.

Air Pollution

Particulates associated with the construction phase of this development will come from vehicles on site, from exhaust emissions, the contact of tyres on the road surface or dust blowing from materials carried via vehicles, stripping of topsoil/vegetation and excavation of footings for the new properties.

The zone of influence for air pollution, particularly dust, will depend on the time of year/weather condition within which works are carried out. For example in dry conditions there may be dust generated by activities taking place during the construction phase, where as in wet weather less dust will be generated. It is also dependant on the wind speed at the

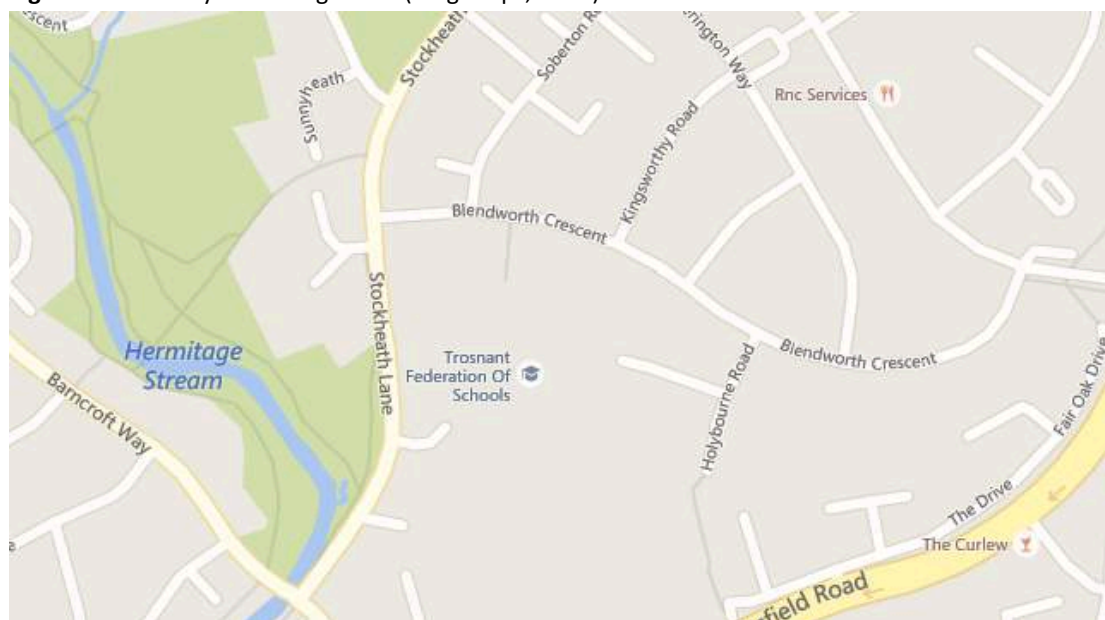
time of the activity as this determines how far the air pollution will be transported and indeed the direction.

Fugitive dust from development sites is typically deposited within 100-200m of the source; the greatest proportion of which comprise larger particles (greater than 30 microns) is deposited within 100m (Greater London Authority, 2006). Therefore the zone of influence for air pollution during construction will be the development footprint itself with a 200meter buffer.

Water Pollution

Hermitage Stream runs to the west of the site (**Figure 3**) however it are separated from the site by public open space and residential development. Therefore there is not considered that water sources will be impacted by the development and so a zone of influence is not applicable.

Figure 3. Proximity of flowing water (Bing Maps, 2015).



4.2.2 Operational Phase

The zone of influence associated with the operational phase is extended beyond the site boundaries due to the nature of the development resulting in an increase in human activity and disturbance in the direct vicinity and further afield.

Human Disturbance

Recreational Pressure

The results of the Solent Disturbance Mitigation Project (SDMP) found that visitors arriving by car lived within 5.04km from the area they visited. Therefore the zone of influence for people visiting Designated and/or protected sites outside of the development boundary will be defined at 5km.

Walking

A study in 2002 found that 38% of walking trips were for personal errands, 28% were for exercise, 21% were for recreation or leisure and 5% for work. The average trip length was 2.1km (National Highway Traffic and Safety Administration and the Bureau of Transportation

Statistics, 2002). With this in mind the zone of influence for disturbance in the form of people on foot will be 2.1km.

Dog Walking

The visitor survey supporting the SDMP found that people participating in dog walking lived within 1.20km of the location at which they choose to walk their dog. Therefore the zone of influence for Dog Walking will be 1.2km.

Light Pollution

This impact of lighting will be confined within the development footprint itself. There is the possibility of light spilling into adjacent land however by retaining and enhancing existing vegetation it is considered this will be minimal. Therefore the zone of influence will encompass the development footprint with a one meter buffer along the outside of the boundary.

Air Pollution

Pollution will arise from the increased level of traffic and vehicles associated with a housing development of this size. It is outside of the expertise of this report to model the spatial patterns of air dispersion and deposition for various chemicals to allow for close delineation of the area of influence. Therefore a general consideration of the impacts on nearby notable ecological features will be taken into account.

Noise Pollution

As the noise associated with this development will not reach high levels, it is considered that the zone of influence for this development in operation will integrate the development site and 10meters to the south of the development boundary.

4.2 Phase I Survey

Managed Amenity Grassland – The main body of the site is made up of amenity grassland, which is under continual management (evident in **Figure 4**). The species within this area included common grass species along with Creeping Buttercup (*Ranunculus repens*), White Clover (*Trifolium repens*), Red Clover (*Trifolium pratense*), Broad Leaved Dock (*Rumex obtusifolius*), Ribwort Plantain (*Plantago lanceolata*), Nettle (*Urtica dioica*), Creeping Cinquefoil (*Potentilla reptans*), Cut Leaved Cranesbill (*Geranium dissectum*), St John's Wort (*Hypericum perforatum*), Field Bindweed (*Convolvulus arvensis*), Common Daisy (*Bellis perennis*), Dandelion (*Taraxacum officinale*), Common Hogweed (*Heracleum sphondylium*), Mallow (*Malva sylvestris*) and Rough Hawkbit (*Leontodon hispidus*).

Figure 4. Image of the site.



Scrub – A buffer of scrub habitat surrounds the periphery of the site (this is also evident in **Figure 4**). This was dominated by Bramble (*Rubus fruticosus*) and Blackthorn (*Prunus spinosa*) with Elder (*Sambucus nigra*), Rose (*Rosa Sp.*) and Creeping Snowberry (*Symphoricarpos mollis*) along with other non-native ornamental species. Within the understory of this area Common Nettle (*Urtica dioica*), Ivy (*Hedra helix*) and Fern (*Dryopteris filix-mas*) were also recorded. The grass within these areas had not been subject to the same management regime as the centre of the site and so the structure was significantly more diverse.

Trees – Around the boundary of the site a number of mature trees were recorded. These included Ash (*Fraxinus excelsior*), Sycamore (*Platanus occidentalis*), Oak (*Quercus Sp.*) and Plum (*Prunus Sp.*). In the southwestern corner a small assemblage of mature trees were noted (**Figure 5**).

Figure 5. View of the southwestern extent of the site.

Hardstanding – An area of concrete hardstanding is located within the centre of the site (evident in **Figure 5**). This was previously occupied by a park, but has since been unused and as a result ruderal vegetation has been able to penetrate the concrete. The species recorded represented the same array as those identified within the grassland itself.

4.4 Phase II Bat Survey

Two Phase II bat surveys were carried out. The dates and information on survey conditions are provided in **Table 1**. Activity was concentrated within the eastern extent of the site particularly the southeastern corner where high levels of foraging from both Common and Soprano Pipistrelles (*Pipistrellus pipistrellus* and *pygmaeus*) was recorded.

Table 1. Relevant survey information.

Date	Temp (°C)	Cloud Cover (%)	Wind	Start time	Finish time
06/07/2015	17	20	None	21:15	23:19
18/08/2015	17	100	None	20:15	22:20

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The majority of activity recorded was that of Common and Soprano Pipistrelles as they utilised the site for both foraging and commuting. Activity where the location of the bat could not be identified was referred to as heard but not seen (HNS). In these instances it was

considered likely the bats were offsite and within neighbouring land. Nathusius' Pipistrelle (*Pipistrellus nathusii*) bats were recorded within the grounds of Trosnant Junior School directly adjacent to the site to the south. However they were not recorded within the site boundary itself. Similarly a Noctule (*Nyctalus noctula*) and Serotine (*Eptesicus serotinus*) bat was recorded within the nearby vicinity. They were not seen over the proposed development site but their exact location offsite was unable to be confirmed due to the lack of a visual.

Table 2. Bat Activity During the First Survey.

Point No.	Start Time at Point	Time of Activity	Species	Activity	Direction of Flight
1	21:15				
3	22:36	21:50	Common Pipistrelle	Commute	HNS
		21:51	Common Pipistrelle	Forage	Southeast corner
3	22:52	21:54	Soprano Pipistrelle	Forage	Southeast corner
		21:55	Common and Soprano Pipistrelle	Forage	Southeast corner
		21:58	Common Pipistrelle	Commute	Northwest along residential gardens

4	22:07	22:08	Common Pipistrelle	Commute	West
		22:09	Nathusius' Pipistrelle	Commute	Within the grounds of Trosnant Junior School
		22:11	Common Pipistrelle	Commute	East
		22:14	Common Pipistrelle Noctule	Commute Commute	West HNS
		22:17	Common Pipistrelle	Commute	HNS
		22:18	Nathusius' Pipistrelle	Commute	Within the grounds of Trosnant Junior School
5	22:23	22:23	Common Pipistrelle	Commute	East
		22:25	Common Pipistrelle	Commute and Forage	Northwest
		22:28	Nathusius' Pipistrelle	Commute	Within the grounds of Trosnant Junior School
		22:32	Nathusius' Pipistrelle	Commute	Within the grounds of Trosnant Junior School
		22:34	Soprano Pipistrelle	Commute	HNS
		22:35	Soprano Pipistrelle	Commute	HNS
6	22:37	22:43	Serotine	Commute	HNS

		22:50	Common Pipistrelle	Forage	South
7	22:57	22:58	Common Pipistrelle	Distant commute	HNS
		23:01	Common Pipistrelle	Commute	Northeast

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The same assemblage of bat species was recorded on site on this occasion as during the first survey with the addition of two Serotine bats recorded in pursuit of each other on two instances. Again bat activity was focused along the edges of the site. As they utilised the linear scrub feature as commuting routes and fed of the insects that the vegetation attracted.

Table 3. Bat activity on site during the second activity survey.

Point No.	Start Time at Point	Time of Activity	Species	Activity	Direction of Flight
1	20:20				
2	20:35	20:38	Common Pipistrelle	Commute	Northeast
		20:44	Common Pipistrelle	Commute	East
		20:46 – 20:48	Soprano Pipistrelle	Forage	Northwest corner
		20:49	2 x Serotine	Commute	Northwest
3	20:50	20:53	Soprano Pipistrelle	Forage	Southwest corner
		20:54	Common Pipistrelle	Forage	HNS
		20:55	2 x Serotine	Commute & Forage	Along western boundary
		20:57	Soprano Pipistrelle	Commute	South
		20:58	Soprano Pipistrelle	Forage	Southwest corner
		20:59	Common Pipistrelle	Commute	HNS
		21:01	Soprano Pipistrelle	Forage	Southwest corner
		21:04	Soprano Pipistrelle	Forage	Southwest corner

		21:04	2 x Common Pipistrelle	Commute	East along southern hedge
4	21:05				
5	21:20	21:22	Soprano Pipistrelle	Commute	HNS
		21:24	Nathusius' Pipistrelle	Commute	HNS
		21:27	Nathusius' Pipistrelle	Commute	HNS
		21:31	Common Pipistrelle	Commute & Forage	HNS
		21:33	Common Pipistrelle	Commute	West
6	21:35	21:35 – 21:50	Common and Soprano Pipistrelle	Forage	Within gardens & above tree
7	21:50	21:53	Common Pipistrelle	Commute	West
		21:59	Common Pipistrelle	Commute	East
		21:05	Common Pipistrelle	Commute	HNS

4.5 Reptile Survey

The vegetation within the scrub buffer was considered suitable to support reptiles, as a result a dedicated reptile survey was undertaken. **Table 4** below contains the data from the reptile survey. A maximum of two Slow Worms were recorded. All records were limited to this buffer vegetation and no reptiles were recorded within the centre of the site.

Table 4. Reptile Survey Results.

Date	Time and temperature	Number of Females	Number of Juveniles	Number of Males	Total Slow worms
23/04/15	10:30, 16°C			1	1
04/04/15	16:30, 17.5°C				0
27/04/15	14:00, 18°C			1	1
29/04/15	15:00, 19°C		1	1	2
01/05/15	16:00, 20°C		1	1	2
21/05/15	11:00, 21°C				0
27/05/15	12:30, 20°C		1		1

4.6 Limitations

It was not considered that there were any significant limitations during any stage of the surveying process. Both the Phase II bat and reptile surveys took place within the optimal survey window and weather conditions were consistently favourable for the species.

5.0 EVALUATION OF RESULTS

5.1 Desk Based Search

5.1.1 Protected Sites

As the development falls within 5.6km of Special Protection Areas within and around the Solent it falls in the zone within which Natural England's advise states that development 'would be likely to have a significant effect'.

5.1.2 Protected Species

As there are no watercourses on, or adjacent to, the site it is considered unlikely Water Vole will be impacted. Similarly no evidence of Badgers was identified during any of the site visits. As a result it is considered highly unlikely that either of these species will be negatively impacted by the proposals. It was considered the site held potential for reptiles and therefore a full reptile survey was undertaken. Finally, although the site was considered to be of low quality for bats, the appropriate level of Phase II survey effort was carried out to assess bat usage of the site.

5.2 Phase I Survey

Managed Amenity Grassland – The amenity grassland within the centre of the site does not provide the diverse vegetation structure and cover that Reptiles favour (Edgar et al., 2010). In addition all floral species present are common and widespread and therefore of negligible botanical value. Therefore this was considered to be of *negligible* ecological value.

Boundary Trees – An assessment of the trees bordering the site was made to determine the likelihood of supporting roosting bats and to provide information as to whether additional surveys would be required. This involved using close-focus Avian Trekker binoculars and a high-powered torch to inspect the tree from the ground looking for features indicative of bat roosts. The survey was in accordance with the Bat Conservation Trust Bat Surveys, Good Practice Guidelines, Second Edition (2012).

The Oak trees on site were considered to be examples of Category 2 (trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found **or** the tree supports some features which may have limited potential to support bats). In addition they provide opportunities for nesting birds. These Oak trees were considered to be of *local* value. Although the other trees on site were considered to be Category 3 (trees with no potential to support bats) they were of a maturity that they were also considered to be of *local* value.

As all trees on site are set to be retained, and there is not to be any development directly adjacent to the trees, further survey effort was not considered necessary. Instead recommendations have been made (see **Section 7.0**) to ensure the development is sensitive to the presence of these trees.

Scrub – The scrub also provides opportunities for nesting birds. Similarly due to a lack of management within the understory the habitat was considered optimal to support reptiles. The subsequent reptile survey confirmed the presence of Slow Worms. Record of Stag Beetles within the western extend of the scrub/hedgerow have been brought to the

attention of the Ecologist. They are classed as a protected species, listed on Schedule 5 of the Wildlife and Countryside Act 1981. Therefore this scrub is considered to be of **local** value.

5.3 Reptiles

The maximum number of two Slow Worms means that this is classified as a Low Population. Slow Worms are widespread but facing general declines in the UK. They are also listed under UK BAP species. Although there are a number of Slow Worm records around local area the site is considered to be of **local** value for Reptiles.

5.4 Bats on Site

Common and Soprano Pipistrelle and Serotine bats were recorded on site with Noctule and Nathusius' Pipistrelles recorded in the nearby vicinity. Common and Soprano Pipistrelle bats fall within the 'common' category of bats with Serotine falling within the 'rarer' category (Wray *et al* 2010). Similarly, Nathusius' Pipistrelle and Noctule are also considered to be example of 'rarer' bats). No roosts were identified on site however due to the relatively early registration of a Common Pipistrelle during the second survey (20:38 with sunset at 20:19) it is considered likely a Common Pipistrelle roost may be located adjacent to, or within close proximity of, the site. Therefore using the points-based system, developed by Wray *et al.* (2010), a score of 21 points for commuting and 20 points foraging bats was produced (see **Table 5**). This classifies the site as **country value** for commuting bats and **local value** for foraging.

Table 5. Valuation of habitat for (a) commuting and (b) foraging bats (Wray *et al.* 2010).

Species	Number of bats	Roosts nearby	Habitat features
(a) Commuting habitat			
Common (2)	Individual bats (5)	None (1)	Absence of (other) linear features (1)
		Small number (3)	Un-vegetated fences and large field sizes (2)
Rarer (5)	Small numbers (10)	Moderate number/not known (4)	Walls, gappy or flailed hedges, isolated well grow hedges, moderate field sizes (3)
		Large number of roosts or close to a SSSI for the species (5)	Well grown and well connected hedges, small field sizes (4)
Rarest (20)	Large numbers (20)	Close or within a SAC for the species (20)	Complex network of well-established hedges, small fields and rivers/streams (5)

(b) Foraging habitat			
Common (2)	Individual bats (5)	None (1)	Industrial or other site without established legislation (1)
		Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Small numbers (10)	Moderate number/not known (4)	Isolated woodland patches, less intensive arable and/or small towns/villages (3)
		Large number of roosts or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture and small villages/hamlets (4)
Rarest (20)	Large numbers (20)	Close or within a SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)

6.0 LIKLEY ECOLOGICAL IMPACTS IN THE ABSENCE OF MITIGATION

6.1 Introduction

The CIEEM guidelines (IEEM, 2006) require that the potential impacts of the proposals should be considered in absence of mitigation. In order for a significant adverse effect to occur, the feature being affected must be at least of local value. However in some cases, features of less than local value may be protected by legislation and/or policy and these are also considered within the assessment. Although significant effects may be identified at this stage of the assessment, it is often possible to provide appropriate mitigation.

6.2 Site Preparation & Construction

6.2.1 Change in Land Use

Habitats and Vegetation

Site preparations will see the removal of the scrub and stripping of topsoil. This activity would have the potential to harm/kill resident reptiles, Stag Beetles and also nesting birds particularly if this was to take place during bird nesting season. This would constitute an offence under wildlife legislation, and an **adverse impact** on local reptile, Stag Beetle and bird populations.

It is not considered that the change in the land use of the site from amenity grassland to residential development will have a significant ecological impact. In its current state it does not provide a valuable habitat. As a relatively large proportion of the site will be incorporated into garden spaces, thus returned back to amenity grassland with the addition of floral diversity, the impact is considered to be **negligible**.

6.2.2 Noise

Noise disturbance can have a range of impacts upon ecology dependent upon the sensitivity of the species, the nature and duration of the noise and the timing of the disturbance. Noise associated with vegetation stripping will only be a temporary disturbance and is considered to only contribute to a very small proportion of the cumulative potential for wildlife disturbance associated with these activities.

Activities associated with high levels of anthropogenic noise can re-structure animal communities (Barber et al. 2009). Reproductive, territorial, alarm and contact calls are forms of acoustical communication that noise can impact (Barber et al. 2009). This can result in a number of issues such as increased predation, and therefore death and injury, and decreased reproductive efficiency. These can both result in decreased numbers of certain species.

Bats

Gleaning bats, who use sounds generated by their prey to hunt, avoid noise when foraging. Thus suggesting that noise is a fragmenting agent for some bats. As construction works will take place during the day, and no roosts have been identified on site therefore daytime disturbance is not applicable, the **impact will be negligible**.

Birds

Acoustic masking resulting from increasing background sound levels will reduce the number of individuals that utilize communication networks and could have consequences for

reproductive processes. For example, songbirds show greater nest desertion and abandonment within 100m of noise disturbance. Noise within close proximity to the scrub is likely to have an **adverse impact**.

Reptiles

Reptiles will respond to the vibrations associated with noise. It may also negatively interfere with prey detection therefore noise associated with the construction phase is likely to have an **adverse impact** when taking place within the areas containing reptiles.

Protected sites

All identified protected sites are located much further than the 50meter buffer surrounding the site, considered to be the zone of influence therefore noise is **unlikely to be negatively impact** upon nearby protected sites.

6.2.3 Air Pollution

The deposition of dust can result from the chemical or physical effects of particles on the vegetation surface or from changes in soil chemistry. Where large amounts of dust are deposited on vegetation over a long time scale (a full growing season for example) there may be adverse effects through reduced photosynthesis. This can cause reduced growth rates in vegetation within the defined zone of influence. As the majority of vegetation within the footprint is set to be removed this will not have an impact. Similarly there is a lack of vegetation of ecological importance within the defined zone of influence. Therefore it is **unlikely to result in negative impacts**.

6.3 Site Operation

6.3.1 Human Disturbance on Protected Sites

A number of designated sites fall within 5km of the proposals. As this development will result in increased numbers of inhabitants in the local area there is the possibility that protected sites will experience increased visitor pressure as a result of the development. Due to the limited size of the site the number of houses that could be introduced is limited and thus it is **unlikely that the impact will be significant**.

No protected sites fall within the 2.1km zone of influence and nearby public open space is connected to the site via established footpaths therefore inhabitants will be able to make use of the paths and existing infrastructure (such as litter and dog waste bins). Therefore the impacts from walking and dog walking are considered to be **negligible**.

6.3.2 Human Disturbance on Protected Species

Anthropogenic disturbance events are perceived by animals as predation risk, regardless of the associated noise levels (Barber et al. 2009). Therefore even a relatively quiet activity, such as walking can impact upon species.

Bats

The development will result in an increase in lighting from streetlights and external lights on the new dwellings. This can affect the foraging behaviour of bats. Therefore this is **likely to have an adverse impact**.

Reptiles

The vibrations of people walking through habitat contain reptiles, could potentially lead to the disturbance of reptile populations on site. It is not considered this will have a significant effect as the reptile population recorded on site were within areas that already experience regular human disturbance. However there will be increased numbers of people and it is therefore considered there will be a **low negative impact**.

Pet Predation

Pet predation associated with the introduction of pets as a result of the operation of the development is **likely to have an adverse impact** upon small mammals and birds. However as the site is already located within a residential setting, with dwellings in close proximity to the site, it is not considered this will have a significant impact.

7.0 MITIGATION

A more detailed Mitigation Strategy has been developed for the reptile population on site (see **Appendix II**) however some general considerations in regard to ecology are detailed below.

7.1 Constructional Phase

7.1.1 Air Pollution

Haul routes can account for a significant proportion of dust emissions, especially in dry or windy conditions, when the generation of dust through the movement of vehicles is exacerbated (Greater London Authority, 2006). It is recommended that developers should ensure that hard surfaces are used for all haul routes, even if routes are temporary. For example the use of consolidated surfaces. It will also be important to regularly inspect the integrity of these and repair routes if required (Greater London Authority, 2006). If weather conditions are particularly dry haul routes will need to be washed or dampen down (Greater London Authority, 2006). Similarly if footings are being excavated during dry weather the ground should be dampened to reduce the amount of dust generated.

With regard to vehicles used during the construction phase, the key mechanism to reduce ecological impacts will be to ensure that there is no 'idling' and that all vehicles should switch off their engines when not in use. In addition cleaning or washing all vehicles effectively before they leave a site reduces the risk of affecting nearby sensitive receptors. Finally all loads entering and/or leaving the site should be covered.

7.1.2 Noise Pollution

A certain level of noise pollution will be unavoidable due to the nature of the development (e.g. the need to excavate footings, mix cement, high numbers of contractor personnel). However by turning off vehicles and machinery when not in use will reduce engine noise. Similarly retaining all boundary vegetation will help retain the noise within the development footprint.

7.1.3 Vegetation Removal

As some of the scrub will need to be removed (see **Appendix I** for more details), which provides suitable habitat for nesting birds, this should take place prior to or after the bird-nesting season (March – August inclusive). If this is not possible then a check by a suitably qualified ecologist should precede removal. If any nests are found then a 3 meter buffer will be left and the nest must be deemed inactive by the ecologist prior to removal.

7.1.4 Protection of Trees

Tree protective fencing will protect trees from direct impact and from severance or asphyxiation of the roots. Fences must be installed at the distance of the branch spread away from the tree trunk (British Standard 5837:2012 Trees in relation to construction) at a distance half the height of the tree and be of chestnut paling or of another similarly robust style of fencing. No vehicles should enter the protective ring fencing and no materials should be stored within their circumference. All protective fencing must be in place prior to any construction machinery arriving on site, before any works on site get underway, and will remain in place until all work is completed.

7.2 Operational Phase

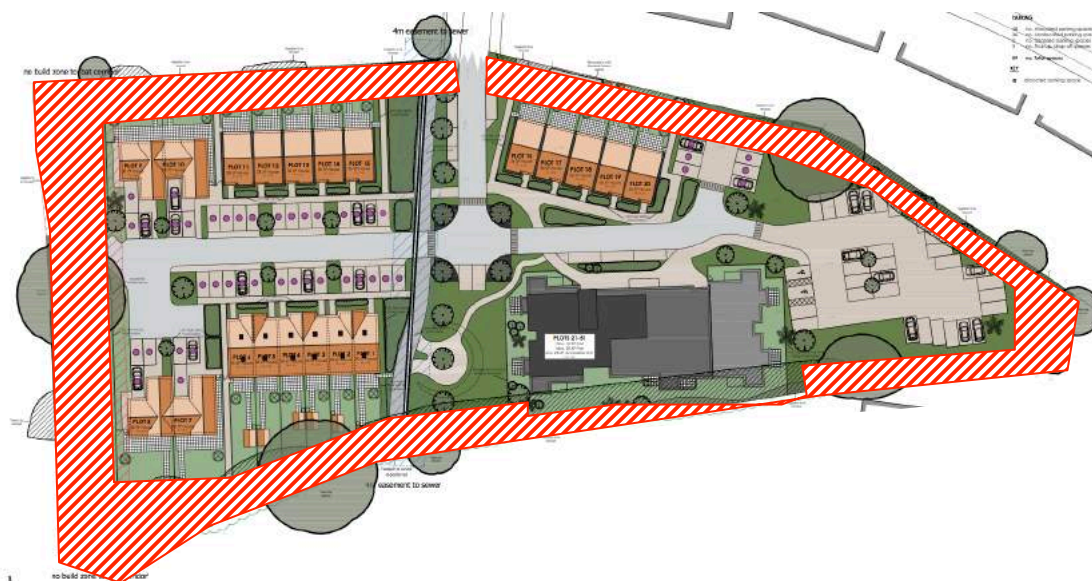
7.2.1 Bats

A full Mitigation Strategy has been produced due to the close proximity of the Serotine roost. The layout of the site has been altered since the location of the bat roost has come to light. As a result a Bar Corridor is to be retained along the western extend of the site. Within this area all vegetation will be retained, no development will take place and no lighting will be introduced.

All street lighting should be down facing and ideally hooded to minimize light pollution in line with appropriate guidance (BCT, 2009). Low-pressure sodium lamps should be utilised on site instead of mercury or metal halide lamps. Glass glazing is preferred due to its UV filtration characteristics. Finally, the time when lighting is utilised should be limited to provide maintain dark periods for as long as possible. Therefore new dwellings will be fitted with sensor-controlled lighting.

The illustrative site plan shows that the majority of the site boundary backs onto gardens (**Figure 6**) therefore the lighting will be concentrated away from the key commuting areas thus preventing interference with the bats currently utilising the site.

Figure 6. Illustrative plan of the site showing lighting will be focuses away from key areas for bats (i.e. the boundaries).



7.3 Proximity to Protected Sites

The site is located within the proximity of sites designated for their nature conservation. Due to the proposed development involving an increase in residents to the area, the impact in terms of increased visitor pressure to these sites must be considered and, where possible, mitigated.

The site lies within the vicinity of the Solent Special Protection Area (SPA). In order to mitigate for the likely increases in residential pressure upon this SPA, and the associated impacts upon high densities of wildfowl and waders for which the area is predominantly

protected, the Solent Disturbance Mitigation Project (SDMP) has been introduced. This is a collaboration with Natural England and local councils, including Havant Borough Council. Mitigation towards the SPA must be provided for all new residential developments within the 5.6km of the SPA.

The report associated with Phase III of the Solent Disturbance Mitigation Project (SDMP) considers avoidance and mitigation measures relating to the impacts associated with new development and it focuses on increased recreational disturbance to wintering and passage waterfowl. Such measures are necessary to protect the SPA and Ramsar site interests on the Solent. It outlines a number of techniques that may form the mitigation framework (see **Box 1**) (Liley and Tyldesley, 2013).

Box 1. Proposed Mitigation for the SDMP.

- A 'Delivery Office' post is required to initiate the elements of the strategy, manage the initial delivery of the mitigation and ensure the necessary procedures, reporting and monitoring is in place.
- A team of 'Wardens' to provide an on-site presence, talking to visitors, engaging with the public about birds and wildlife, help with the delivery of other elements of the strategy and undertaking monitoring.
- 'Solent Dog Project' to engage with dog walkers, promote sites for dog walking and provide information on dog-walking around the Solent.
- A 'Review of Parking and Access' will lead to recommendations relating to creating additional parking in some locations, reducing parking in others, revised parking charges and may provide evidence for the exclusion zones.
- A 'Review of Watersport Zones and Watersport Access' will interact with user groups and set out a series of clearly defined zones with necessary infrastructure.
- The development of the 'Codes of Conduct Pack' will be undertaken with users groups, helping to establish clear communication and discussion, covering watersports and shorebased activities. The codes should include maps and fit together as a single pack of separate codes.
- 'Site Specific Projects', relating to both shore-based and water-based access, would include path re-routing, creation of new paths, dedicated areas for dogs, enhanced facilities for watersports, marking of dedicated watersport zones, changes to car-parks.
- Once 'Watersport permits and Enforcement' is established, monitoring results will indicate whether further measures are necessary. Various more restrictive options are then available for example dog control orders, permit systems for particular watersports at particular locations and enforcement of byelaws could be introduced as required and targeted as necessary.
- SANGS/ADDITIONAL GI/ALTERNATIVE ROOST SITES: these measures are large, costly and are unlikely to be 'quick wins'. As such they should be considered as
- Elements to be adopted at a later part of the strategy include the creation of 'Alternative Roost Sites' and Suitable Alternative Natural Green Spaces (SANGS).

The measures will need to be provided either directly by individual developments or indirectly via funding contributions. As it states within the report 'In most cases it will not be possible for an individual development to implement any direct measures in order to wholly

or partly offset its effects on the Solent SPAs' therefore 'the effects of the development can be mitigated by it making a proportionate contribution to the cost of implementing the Strategy'.

The SDMP necessitates that financial contributions are made to help mitigate against likely significant impacts from new developments with the defined 5.6km disturbance zone. A financial contribution of £174 per dwelling will be made either before planning permission is granted or by entering into a Section 106 Planning Obligation.

The Liley and Tyldesley (2013) report states that 'contributions of individual proposals to the strategic funding ensures that they will not be likely to have a significant effect on the SPAs, either

- a) alone (usually because they are too small); or
- b) in combination with other plans or projects (because the combined effects are eliminated by the implementation of the strategy to which the development has made a fair and proportional contribution in order to avoid any significant effects on the site).

8.0 ECOLOGICAL ENHANCEMENTS

8.1 Landscape Planting

As a general enhancement, in line with the CIEEM guidance (2012) any proposed planting should aim for a 70:30 ratio in favour of native species over non-natives and ornamentals. Ideally fruit bearing species, providing food sources for birds and small mammals during the autumn and winter and nest sites during the spring and summer, should be utilised. Species that should be considered include:

- Hawthorn
- Alder Buckthorn (*Frangula alnus*)
- Blackthorn (*Prunus spinosa*)
- Wild Cherry (*Prunus avium*)
- Crab Apple (*Malus sylvestris*)
- Elder (*Sambucus nigra*)
- Rowan (*Sorbus aucuparia*)

Shrubs to be considered within the landscape planting include:

- Dogwood (*Cornus sanguinea*)
- Holly (*Ilex aquifolium*)
- Privet (*Ligustrum vulgare*)
- Dog Rose (*Rosa canina*)
- Guelder Rose (*Viburnum opulus*)

8.2 Nesting Birds

It is recommended that four 1B Schwegler Nest Boxes with 32mm entrance hole should be erected within trees on site to attract a variety of birds.

8.3 Bats

In the interest of promoting ecology and to keep in line with National and Local policy it is recommended that a minimum of five bat boxes are integrated within at least five of the new dwellings. The Bat Box C design (**Figure 7**) has been designed specifically for crevice dwelling bat species such as the Common and Soprano Pipistrelles recorded on site. For full details please see the Bat Mitigation Strategy.

Figure 7. Bat Box C available from IBSTOCK.



Inline with Natural England guidance (2015) roofing felt should be utilised as apposed to Breathable Roof Membrane (BRM) as there is considerable evidence to suggest that BRM poses a threat to bats occupying loft voids due to entanglement of bats in the fibres (Natural England, 2015).

8.4 Stag Beetle

As Stag Beetles have been recorded along the site boundaries it is recommended that additional suitable habitat is introduced. A deadwood log pile, ideally containing Oak, Apple, Ash and Cherry tree, should be assembled within the Bat Corridor. Large surface areas should be in contact with the soil so that the wood remains moist and is able to rot. Female Stag Beetles will then be able to lay their eggs (PTES, 2015).

9.0 REFERENCES

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Appendix I - 2km search Radius of 'Land off Blendworth Crescent'

Common Name	Latin Name	Location	Year	Count
Slow-worm	<i>Anguis fragilis</i>	1.87km south west of site on a road verge north of the A27.	2008	2
		1.83km south west of site on a road verge south of the A27.	2008	1
		1.76km south west of site on a road verge south of the A27.	2008	1
		1.71km south west of site on a road verge south of the A27.	2008	2
		1.64km south west of site on a road verge of the A27.	2008	2
		1.51km south west of site in a woodland area south of the A27.	2008	2
		1.50km south west of site in a woodland area south of the A27.	2008	1
		1.46km south west of site in a woodland area south of the A27.	2008	1
		1.45km south west of site in a woodland area south of the A27.	2008	1
		1.42km south west of site in a woodland area south of the A27.	2008	2
Adder	<i>Viper berus</i>	1.31km north east of site in a small grassy area with a residential area to the north and woodland to the south.	2006	0
Serotine	<i>Eptesicus serotinus</i>	2.74km south west of site in a residential area surrounded by agricultural fields.	2011	2
		1.91km south west of site in an agricultural field north of the railway line.	2008	0
		1.36km south west of site in a line of trees north of the A27.	2014	1
		0.5km south west of site in a residential area with Hermitage Stream to the east and the railway line to the south.	2001, 2011	28
		0.5km south west of site in a residential area with Hermitage Stream to the east and the railway line to the south.	2002, 2014	28
		0.5km south west of site in a residential area with Hermitage Stream to the east and the railway line to the south.	2007	7
		1.75km north west of site in a line of trees with a residential area to the west and Staunton Country Park to the north.	2005	3
		2.38km south east of site in a	2011, 2014	3

		woodland area just north of Chichester Harbour.		
		1.74km north east of site in a woodland area west of the railway line.	2013	0
Unidentified bat	<i>Myotis spp.</i>	2.72km south west of site in a residential area surrounded by agricultural fields.	2011	1
		2.41km south west of site in an area grassland with the A3 to the east, woodland	2011	2
		1.91km south west of site in an agricultural field north of the railway line.	2008	1
		1.91km south west of site in an agricultural field north of the railway line.	2010	1
		1.56km north west of site on an area of open grassland in a residential area.	2012	1
		1.56km north west of site on an area of open grassland in a residential area.	2012	1
		2.34km south west of site in an agricultural field north of Langstone Harbour.	2012	1
		0.5km south west of site in a residential area west of Hermitage Stream.	2012	1
		0.5km south west of site in a residential area west of Hermitage Stream.	2013	1
		2.38km south east of site in a woodland area north of Chichester Harbour.	2011	1
		1.74km north east of site in a woodland area to the west of the railway line.	2013	1
Natterer's Bat	<i>Myotis Natterari</i>	2.38km south east of site in a woodland area north of Chichester Harbour.	2009	1
Lesser Noctule	<i>Nyctalus lesleri</i>	1.74km north east of site in a woodland area to the west of the railway line.	2013	0
Noctule Bat	<i>Nyctalus noctula</i>	1.91km south west of site in an agricultural field north of the railway line.	2008	1
		1.91km south west of site in an agricultural field north of the railway line.	2010, 2011	2
		1.56km north west of site on an area	2014	1

		of open grassland in a residential area.		
		1.36km south west of site in a line of trees bordering the A27.	2000, 2013	2
		1.36km south west of site in a line of trees bordering the A27.	2010	1
		1.36km south west of site in a line of trees bordering the A27.	2012	1
		0.5km south west of site in a residential area west of Hermitage Stream.	2007	1
		0.5km south west of site in a residential area west of Hermitage Stream.	2007	1
		0.5km south west of site in a residential area west of Hermitage Stream.	2014	1
		0.5km south west of site in a residential area west of Hermitage Stream.	2011	1
		0.5km south west of site in a residential area west of Hermitage Stream.	2013	1
		1.75km north west of site in a line of trees bordering Staunton Country Park.	2005	3
		2.38km south east of site in a woodland area north of Chichester Harbour.	2011	1
		1.80km north east of site in a woodland area in Staunton Country Park.	2014	1
		1.74km north west of site in a woodland area bordering the railway line.	2013	1
Pipistrelle Bat Species	<i>Pipistrellus</i>	1.25km south west of site in an outbuilding in an industrial estate. Grassland fields and Hermitage Stream are located to the north west and the A27 to the south.	2011	2
		0.5km west of site in a residential area with a grassy field to the south west.	2012	1
		1.36km south west of site in a line of trees bordering the A27.	2013	5
		0.45km south west of site in a residential area east of Hermitage Stream.	2008, 2009	1
		0.1km west of site with Hermitage stream and grassland area to the west.	2008, 2010	2

		0.5km south east of site in a car park in a residential area with Petersfield Road to the north and the railway line to the south.	2009	1
		0.64km south east of site in a residential area with the railway line to the south.	2009	3
		1.8km north east of site in a residential area with Staunton Country Park.	2010	0
		1.70km south east of site on the railway line with a residential area the west and agricultural fields to the north east and south.	2005	2
Nathusius's Pipistrelle	<i>Pipistrellus nathusii</i>	<i>*Due to the sensitive nature of this record the exact location is not available. It is however noted to be within 2km of the site.</i>	2014	1
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	1.99km south west of site in an area of scrub by the A3.	2010, 2011	4
		1.96km south west of site in an agricultural field by the A3.	2011	1
		1.94km south west of site in an agricultural field by the A3.	2011	2
		1.91km north west of site in a woodland area of Nevilles Park.	2014	1
		1.98km south west of site in a line on trees bordering the A27.	2008, 2009	1
		1.64km north west of site in a grassland area south of Nevilles Park with residential areas to the east and south.	2012	1
		1.98km north west of site in an agricultural field north of Nevilles Park with the A3 to the west and a residential area to the east.	2014	1
		2.06km north west of site in an agricultural field north of Nevilles Park with the A3 to the west and a residential area to the east.	2011	0
		1.36km north west of site in a residential area by Hermitage Stream.	2010	1
		1.48km south west of site in a line of trees south of the A27.	2008, 2009	1
		0.86km north west of site in the garden of a residential property that backs onto Hermitage Stream.	2013	2
		1.25km south west of site in an outbuilding in an industrial estate. Grassland fields and Hermitage	2010, 2011	2

		Stream are located to the north west and the A27 to the south.		
		0.72km north west of site in a line of trees between a residential dwelling and Hermitage Stream.	2012, 2013	1
		1.36km south west of site in a line of trees north of the A27.	2000, 2013	8
		0.58km south west of site in a grassland area east of Hermitage Stream and north of the railway line.	2012	1
		0.50km south west of site in an area of scrub bordering Hermitage Stream.	2012	1
		0.3km west of site on Hermitage Stream.	2012	1
		0.44km south west of site in a residential area east of Hermitage Stream.	2012, 2014	1
		0.22km south west of site in an agricultural field west of Hermitage Stream.	2013	1
		0.7km south west of site in a residential area south of the railway line.	2010	2
		0.1km west of site with Hermitage stream and grassland area to the west.	2007, 2014	2
		0.6km south of site in a residential north of the railway line and south of New Road.	2010	5
		0.71km on Park Road North by an industrial building with Havant Park to the east.	2014	1
		1.22km north east of site at the border of a woodland surrounded by a residential area.	2014	1
		0.58km south east of site in the car park of commercial buildings north of the railway line.	2012	1
		1.17km north east of site at the border of a woodland surrounded by a residential area and an area of grassland to the south.	2014	2
		1.84km north east of site in a woodland area by a lake in Stanton Country Park.	2011	1
		1.90km south east of site in a woodland with a residential area to the west, agricultural fields to the east and Emsworth Harbour to the south.	2013	2

		1.80km south east of site in a residential area with woodland and agricultural fields to the east.	2012, 2013	2
		1.80km south east of site in a residential area with woodland and agricultural fields to the east.	2013	0
		1.80km north east of site in a woodland area in Staunton Country Park.	2013	6
		2.02km south east of site in a woodland area with agricultural fields and buildings to the east, a residential area to the west and Emsworth Harbour to the south.	2013	2
		1.93km south east of site in a woodland area with agricultural fields to the east, a residential area to the west and Emsworth Harbour to the south.	2013	0
		1.93km south east of site in a woodland area with agricultural fields to the east, a residential area to the west and Emsworth Harbour to the south.	2014	1
		1.84km south east of site in an agricultural field with further agricultural fields to the east, a residential area to the west, the A27 to the north and Emsworth Harbour to the south.	2013	1
		1.84km south east of site in a woodland area with agricultural fields to the east, a residential area to the west, the A27 to the north and Emsworth Harbour to the south.	2013	0
		1.79km south east of site in a line of trees south of the A27 with agricultural fields and Emsworth Harbour to the south.	2011,2013	2
		1.61km south east of site in a residential area with numerous trees north of the A27.	2013	0
		1.61km south east of site in a residential area with numerous trees north of the A27.	2013,2014	1
		1.79km north east of site in a woodland area of Staunton Country Park.	2012	1
		1.58km north east of site on Petersfield Road with a residential area to the south west, Staunton	2008	1

		Country Park to the north and woodland and agricultural fields to the east.		
		1.72km north east of site in a residential area with Staunton Country Park to the north west and woodland and agricultural fields to the east.	2007, 2010	6
		1.80km north east of site in a residential area with Staunton Country Park to the north west and woodland and agricultural fields to the east.	2013	2
		1.83km north east of site in the garden of a residential property to the east of the railway line.	2013	0
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	1.99km south west of site in an area of scrub by the A3.	2010	1
		1.94km south west of site in an agricultural field by the A3.	2011	2
		1.92km south west of site in a woodland area by the A3.	2011	2
		1.98km south west of site on a road verge of the A27 with the railway line to the north.	2008	1
		1.48km south west of site in a line of trees south of the A27.	2009	1
		1.25km south west of site in an outbuilding in an industrial estate. Grassland fields and Hermitage Stream are located to the north west and the A27 to the south.	2010, 2011	1
		0.72km north west of site in the garden of a residential property that backs onto Hermitage Stream.	2012	1
		0.4km west of site in a residential property that backs onto the Hermitage Stream.	2013	1
		1.36km south west of site in a line of trees north of the A27.	2010, 2013	11
		0.58km south west of site in a grassland area by Hermitage Stream north of the railway line.	2012	1
		0.5km south west of site in an area of scrub along Hermitage Stream in a residential area.	2012	1
		0.3km west of site by Hermitage Stream with a residential area to the west and grassland to the north.	2012,2013	1
		0.45km south west of site in a residential area with Hermitage	2014	1

		Stream to the west.		
		0.1km west of site with Hermitage stream and grassland area to the west.	2009	1
		1.21km north east of site at the edge of a woodland bounded by a residential area to the east, south and west and Staunton Country Park to the north.	2014	1
		1.92km south east of site in a residential area with agricultural fields and Emsworth Harbour to the south east and agricultural fields and Bridge lake to the south west.	2014	2
		1.75km south east of site in a residential area with agricultural fields and Emsworth Harbour to the south east and agricultural fields and Bridge lake to the south west.	2014	1
		0.56km south east of site in a residential area next to a commercial carpark north of the railway line.	2010	1
		1.90km south east of site in a woodland with a residential area to the west, agricultural fields to the east and Emsworth Harbour to the south.	2011,2013	2
		1.90km south east of site in a woodland with a residential area to the west, agricultural fields to the east and Emsworth Harbour to the south.	2013	0
		1.80km south east of site in a residential area south of the A27 with woodland and agricultural fields to the east and Emsworth harbour to the south.	2013	2
		1.80km south east of site in a residential area south of the A27 with woodland and agricultural fields to the east and Emsworth harbour to the south.	2013	0
		1.71km south east of site in a residential area south of the A27 with woodland and agricultural fields to the east and Emsworth harbour to the south.	2013	0
		1.52km south east of site in a residential area north of the A27.	2013	0
		1.52km south east of site in a residential area north of the A27.	2013	1

		1.80km north east of site in a woodland in Staunton Country Park.	2013	2
		2.02km south east of site in woodland surrounded by agricultural fields and Emsworth Harbour to the south.	2013	2
		1.93km south east of site in an agricultural field with a residential area to the east, further agricultural fields to the east and Emsworth Harbour to the south.	2012	1
		1.75km south east of site in an area of scrub south of the A27 with agricultural fields and Emsworth Harbour to the south.	2013	0
		1.79km south east of site in an area of scrub south of the A27 with agricultural fields and Emsworth Harbour to the south.	2011,2013	2
		1.61km south east of site in a residential area north of the A27.	2014	1
		0.90km south west of site in a line of trees in a residential area with an industrial estate to the east.	2003	1
		1.77km south east of site in a residential area north of the A27.	2014	0
		1.83km north east of site in the garden of a residential property to the east of the railway line.	2013	0
Long-eared Bat species	<i>Plecotus</i>	1.64km north west of site in a grassland area by Hermitage Stream with Nevilles park to the north west and residential and industrial properties to the east and south.	2012	1
Brown Long-eared Bat	<i>Plecotus auritus</i>	1.79km north east of site in a woodland area of Staunton Country Park.	2012	1
		1.83km north east of site in the garden of a residential property to the east of the railway line.	2013	0
European Water Vole	<i>Arvicola amphibius</i>	1.60km south east of site on the banks of the river by an industrial estate south of the A27.	2013	0
		1.08km south of site by a river by an industrial estate.	2013	0
		1.41km south west of site by the A27 where a river runs under the A27.	2009	2
		1.17km south of site in an industrial estate where a river runs through.	2013	0
		1.13km south of site in an industrial estate where a river runs through.	2013	0

		1.49km south east of site in a river running through a grassland area situated south of the A27, east of an industrial estate and north and west of a residential area.	2013	0
		1.23km south of site in an industrial estate where a river runs through.	2013	1
		1.23km south of site in an industrial estate where a river runs through.	2014	1
		1.21km south of site in an industrial estate where a river runs through.	2013	0
		1.19km south of site in an industrial estate where a river runs through.	2013	1
		1.18km south of site in an industrial estate where a river runs through.	2013	0
		1.30km south of site in an industrial estate where a river runs through.	2013	0
		1.28km south of site in an industrial estate where a river runs through.	2013	0
		1.23km south west of site in close proximity to a river and Langbrook stream in a built up area.	2014	2
		1.23km south west of site on Langbrook stream in a built up area.	2014	0
		1.23km south west of site on Langbrook stream in a built up area.	2014	3
		1.22km south west of site on Langbrook stream in a built up area.	2013	0
		1.21km south west of site on Langbrook stream in a built up area.	2013	0
		1.20km south west of site on Langbrook stream in a built up area.	2013	0
		1.22km south west of site on Langbrook stream in a built up area.	2011	2
		1.24km south west of site on Langbrook stream in a built up area.	2013	0
		1.21km south west of site on Langbrook stream in a built up area.	2013	0
		1.23km south west of site on an area of grass by Langbrook stream in a built up area.	2013	0
Eurasian Badger	<i>Meles meles</i>	1.43km south east of site in a residential area north of the A27 with a small area of woodland to the east.	2006	2
		1.43km south east of site in a residential area north of the A27 with a small area of woodland to the east.	2006	2

Slow Worms are considered relatively widespread in Hampshire and across the South of England, with those identified on site considered likely to be part of a larger population in

the local area. That said they are still protected by wildlife legislation. Consequentially, the site is considered to hold **LOCAL VALUE** with regards to reptiles.

1.3 Impacts in the Absence of Mitigation

1.3.1 Initial Impacts

Prior to the retention of the boundary vegetation buffer, the site preparation and construction phases of the proposed works would have had the potential to harm/kill resident reptiles, due to the removal of vegetation, top soil and the excavation of footings. This would have likely constituted an offence under wildlife legislation, and an **adverse impact** on local reptile populations. Although this is no longer the case there is still the risk of machinery entering areas of suitable reptile habitat or accidentally clearing in part or the entirety of these areas. It is still likely that this would constitute an offence under wildlife legislation, and an **adverse impact** on local reptile populations, without measures put in place to protect the buffer.

1.3.2 Isolation and Fragmentation

Without mitigation the boundary vegetation could have been removed and so there would have been a lack of connectivity from the site to the adjacent gardens. As the proposed development will retain the majority of this, which connects the site to the wider landscape, is not considered likely that any significant habitat fragmentation and/or isolation will be caused to local reptile population.

1.3.3 Post-development Impacts

In the absence of mitigation/compensation, the proposed works could have resulted in the loss of suitable reptile habitat on site, which would constitute an **adverse impact** on local reptile populations. As it now stands, it is considered once the development is complete, there will be no post-development impacts.

2.0 MITIGATION AND COMPENSATION

2.1 Aims

The general principles of reptile mitigation entail the protection of reptiles from harm by removing them from within the footprint of the development. The favourable conservation status of reptiles within the local area must also be maintained by ensuring there is sufficient suitable reptile habitat to support the reptile population.

Wherever possible, reptiles should be retained on site, or released immediately adjacent to the site. *In-situ* relocation schemes, where reptiles are retained in suitable areas of a development site or released into immediately adjacent habitat are preferable (English Nature, 2004). This will be the case for this development.

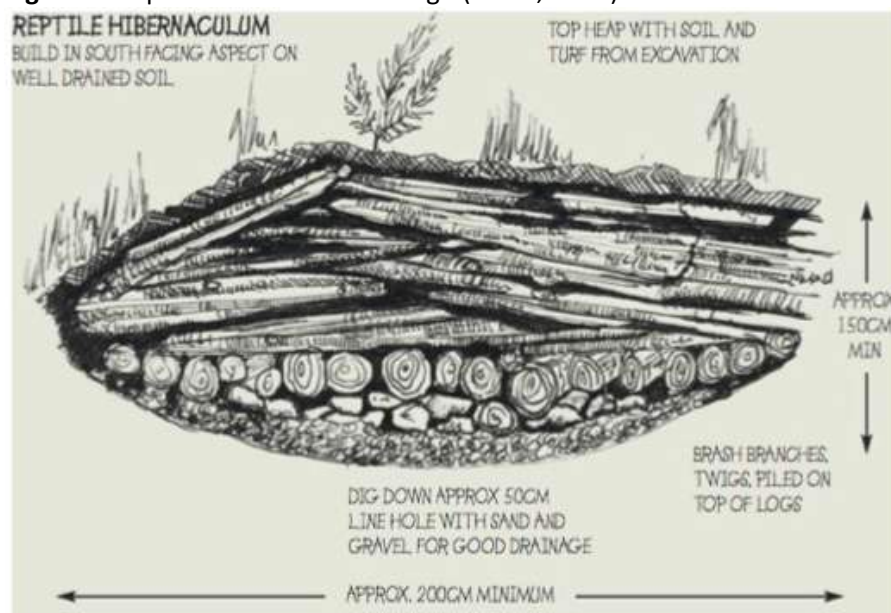
2.2 Protected Area

In order to enhance this area sensitive habitat works will be undertaken prior to works getting underway. In its current state, the majority of the boundary is dominated by Bramble

and Blackthorn. This should be cut back to ensure it does not encroach further and thus reduce the favourability of the area for reptiles. This will take place outside of bird nesting season (March – August). Works should not impact ground level, particularly if being carried out in the winter months, to ensure that hibernating reptiles are not harmed.

An artificial hibernacula will be constructed within the eastern most extent of the site within the Landscaped Amenity Space. This will provide shelter and hibernation opportunities as well as providing a significant habitat resource for invertebrates (a food resource for reptiles). The design of the hibernacula will follow best practice guidelines (HART, 2009), comprising a mixture of rubble and organic materials with a turf cover (**Figure 2**) however due to the limited size of the site itself it will be made slightly smaller. It is considered that these measures will increase the carrying capacity of the habitat to support the translocated reptiles.

Figure 2. Reptile hibernaculum design (HART, 2009).



2.3 Fencing

Once the habitat enhancements have taken place reptile exclusion fencing will be installed around the perimeter of the suitable reptile habitat. This will provide a division between the reptile area and the 'working' areas i.e. those areas where humans and machinery will disturb the ground. The fencing will remain in place until all works are completed. **Figure 3** shows the location of the fencing in yellow.

Figure 3. Location of reptile exclusion fencing.

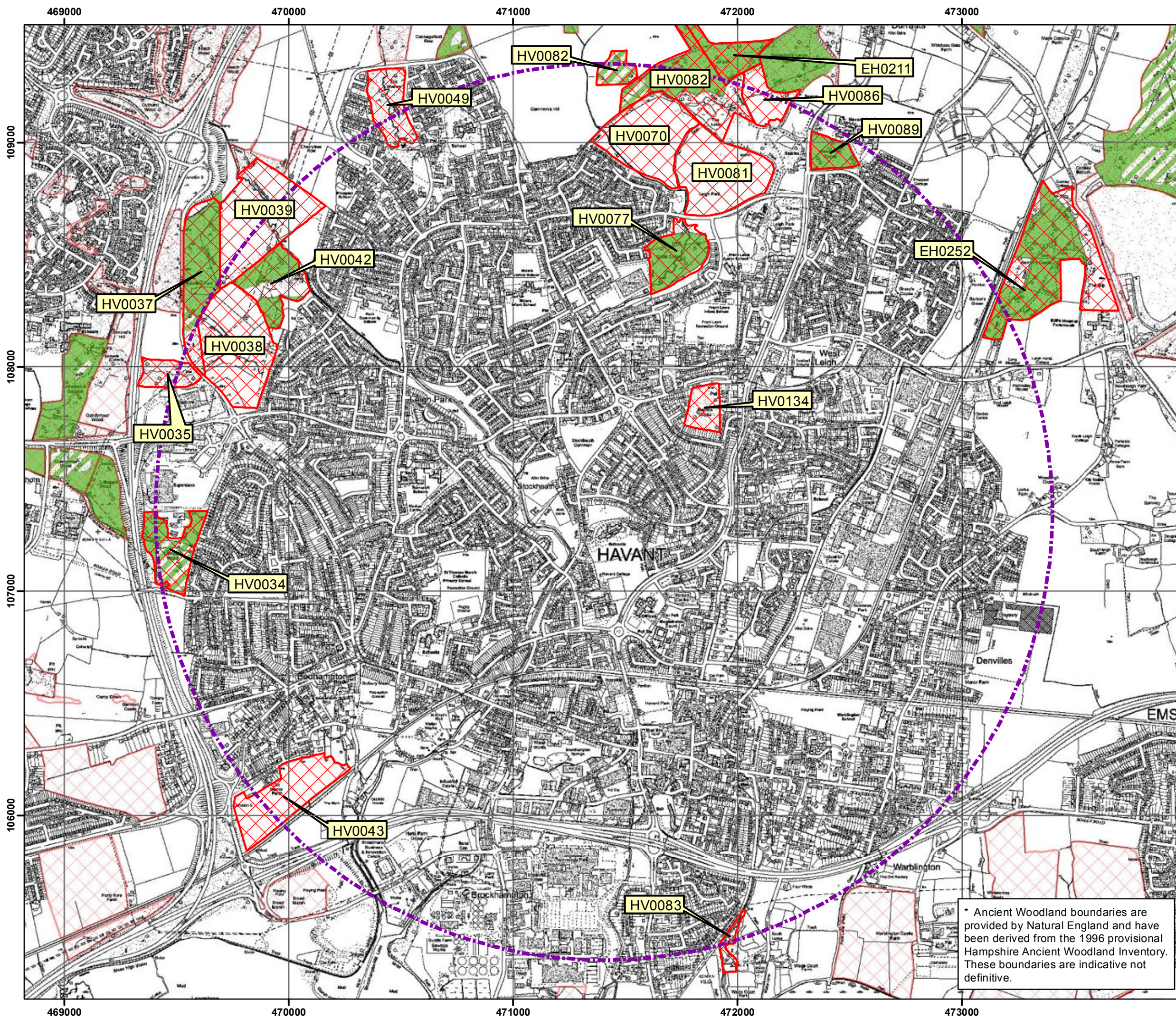


2.3 Safeguarding

The proposed protected area of the site will be protected in perpetuity from any works that could reduce its suitability to support reptiles and/or pose any risk to the reptiles present, including but not limited to development. Initial habitat enhancement works to the reptile receptor site will be the responsibility of, and funded by Portsmouth City Council.

3.0 Conclusion

It is considered that, providing the above steps are implemented, there will be no negative impacts towards reptiles on site.



HBIC Ref: 5411

Non-statutory designated sites within 2km of 'Land off Blendworth Crescent' (SU714073):

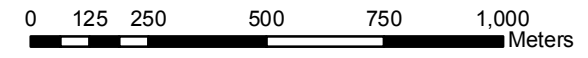
Legend

- Search Area
- SINC's (labelled)
- Surrounding SINC's

Ancient Woodland Inventory

- Semi-Natural
- Replanted

Created: 19/03/2015
Scale at A3: 1:16,000



* Ancient Woodland boundaries are provided by Natural England and have been derived from the 1996 provisional Hampshire Ancient Woodland Inventory. These boundaries are indicative not definitive.

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