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Preliminary Ecological Appraisal (PEA)
(Incorporating Extended Phase 1 Habitat Survey)

Report Prepared on behalf of Andrew Loosley.
For the site of 'Land east of Orchard Gardens, Woodgate, West Sussex PO20 3QW'.

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Preliminary Ecological Appraisal (PEA)

Background to Survey

The client, Mr. Andrew Loosley has commissioned Arbtech Consulting Ltd. to undertake a Preliminary Ecological Appraisal [PEA] (incorporating an Extended Phase 1 Habitat Survey) for 'Land east of Orchard Gardens, Woodgate, West Sussex PO20 3QW'. The proposal involves a residential development.

The purpose of the survey was to establish the baseline ecological condition of the site and the potential zone of influence (on any ecological receptors that might be impacted upon) of the proposals; determine any further evaluations that might be necessary to evaluate the ecological condition (Phase II surveys); and make any general mitigation and enhancement recommendations that are appropriate.

Summary of Recommendations

If the PEA determines that the proposals will not impact upon habitat or species considered to be of nature conservation value (ecological receptors) then it is unlikely that any further evaluation will be necessary to achieve planning determination. However if it appears that the proposals do impact upon ecological receptors then further scientific investigation may be required and it is likely that some form of mitigation will need to be offered. Furthermore planning authorities are now under an obligation to seek enhancements (positive improvements) for biodiversity through the planning system. All ecological advice must also be mindful of statutory wildlife legislation irrespective of the planning process.

Taking into consideration the desk study and site survey findings, this report concludes that the proposed development might produce impacts upon certain ecological receptors and that these are likely to require further evaluation.

Therefore, in order to provide adequate support for this planning application, it is assessed that the following species/habitats are likely to require further evaluation:

- Reptiles

A full specification for these surveys that are appropriate to the scale and scope of the proposed development can be found in the ‘Conclusions’ and ‘Recommendations’ sections of this report.

Summary of Potential Mitigation, Potential Impact, Loss and Gain

Habitat/Species concerned	Potential impact/loss?	Potential mitigation required* (Further surveys to confirm exact requirements).	Potential ecological gain/positive enhancement measures
Habitats	The grassland and scrub on site will be lost in the development.	No mitigation or surveys required.	Native hedgerows and trees should be planted to increase the ecological value of the site. Wildflower areas should be added to create new habitat, encourage wildlife and increase biodiversity. Long grass and scrub boundaries should be created around the site to retain some of the original character.
Invertebrates	The grassland and scrub on site provide an expanse of invertebrate habitat which will be lost.	No mitigation or surveys required.	Insect “hotels” can be installed to provide safe refuge for invertebrates. Wildflower areas will create foraging habitat. A buffer zone of long grassland around boundaries where possible will create further habitat. Dead wood piles half buried create breeding habitat for species such as stag beetles. These measures will improve invertebrate habitat on site and work towards encouraging more species thus increasing biodiversity.
Amphibians	No impact. There are no ponds within 500m to provide suitable breeding habitat therefore it is very unlikely that species such as great crested newts would use the terrestrial habitat on	No surveys or mitigation required.	A wildlife pond should be added on site to provide breeding habitat for amphibians.

	site.		
Badgers	There are no badger setts on or within 30m of the site therefore the development will not have any impact on badger setts. Badgers could be using the site for foraging and commuting.	No further surveys are required. However the following recommendations are given in order to mitigate against potential harm to badgers during the development works. - Any trenches dug should either be covered at night or have a rough sawn plank placed in them to act as a ramp for any wildlife which may fall in. - Security lighting to be directed away from the undergrowth. - Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations.	Fruit trees and bushes bearing berries should be added to provide foraging sources for badgers.
Bats	It is likely that bats are using the site for foraging and commuting. The tree line is to stay in place but extra lighting could disrupt bat activity. One ash tree was noted for its bat roosting potential, as the plans are currently understood this is not to be removed.	Lighting needs to be controlled around the new development. Lighting on the tree line along the eastern boundary of the site must not exceed 0.3 LUX. General lighting on site should all be on downward facing deflectors to minimize lighting impact.	Bat boxes will be installed on new buildings and/or retained trees. Lighting should also be controlled around these. This will increase roosting opportunities for bats on site.
Barn Owl	The grassland and scrub on site provide potential barn owl foraging habitat which will be lost.	No further surveys	A buffer zone of long grass and scrub around site boundaries where possible will retain some small mammal habitat which barn owls could use for foraging. A barn owl box will be erected on a tree along the eastern tree line.
Breeding Bird	Nesting birds and eggs may be disturbed during tree and vegetation clearance.	Any works which affect the trees and shrubs on site could have an impact on nesting birds. Since all in-use bird's nests and their contents are protected from damage or destruction, any tree and shrub removal should be undertaken outside the period 1st March to 31st August. If this time frame cannot be avoided, a close inspection of the	Bird boxes should be installed on new buildings or retained trees.

		vegetation to be removed should be undertaken prior to clearance. Work should not be carried out within 5.0m of any in-use nest and with an Ecological Clerk of Works present	
Reptiles	Loss of habitat and possible harm to reptiles. The habitat on site represents good foraging areas, basking areas and refugia for reptiles. The long unmanaged grass and scrub with the wooded tree line create a mosaic of habitats that offer a range of foraging and shelter potential. Adjacent woodland and grassland to the north proves further habitat. The site is linked to the wider habitat by tree lines and gardens. There are records of slow worms, grass snakes, adders and common lizards within a 2km radius of the site.	Full Reptile Surveys. A minimum of 8 visits in suitable weather (9°C - 18 °C) are required, one of these is to set-up the survey. Common reptile species only receive limited statutory protection and are not classed as European Protected Species (EPS). As such a Planning Authority may Condition the reptile survey and any subsequent mitigation plan (if required). Refuges are placed at regular intervals on site, and these are then checked in subsequent visits. These checks should be at least a week apart. This can be done starting from April, the season ending in October, with the optimal being April, May and September. Any reptiles are recorded. If reptiles are found, a reptile mitigation plan will need to be created for the site.	Reptile refugia and long grass margins will be added to increase habitat for these animals in the long term. The proposed green space within the development will enable mitigation and compensation measures if reptiles are found during the necessary surveys. A full mitigation and compensation strategy will be developed if reptiles are found to be using the site.
Other Terrestrial Mammals	The eastern tree line provides potential habitat for dormice. As this tree line is to remain unaffected there should be no impact on this species.	The eastern tree line must remain undeveloped and unlit.	The eastern tree line will remain unaffected. This will allow dormice and other wildlife such as hedgehogs to continue to use this area as a green corridor. Fencing should be of open character to allow free movement of terrestrial mammals in and out of the site. This is particularly important along the northern and eastern boundaries.
Problematic Species	None found.	No further surveys or mitigation.	None applicable.

1.0 The Company and Contact Information

Established in 2005, Arbtech Consulting Limited provides arboricultural and ecological consultancy services in respect to planning and development, throughout the UK.

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2.0 The Surveyor

The surveyor and principal author of this report is Natalie Evans HND, BA (Hons), MA.

3.0 Protected Species Licenses

The surveyor holds an appropriate licence to enable her to undertake this type of survey.

4.0 The Client

The client is Mr. Andrew Loosley.

5.0 The Site of Proposed Development

The client is preparing a planning application for ‘Land east of Orchard Gardens, Woodgate, West Sussex PO20 3QW’. The proposal involves a residential development.

6.0 The Survey Brief

The client commissioned Arbtech Consulting Ltd to undertake a PEA in accordance with current guideline standards¹. The PEA includes an extended Phase 1 Habitat Survey that has been conducted in accordance with the technique outlined in the Joint Nature Conservation Committee (“JNCC”) Handbook for Phase 1 Habitat Survey a technique for environmental audit (2010).

¹ CIEEM 2012. Guidelines for Preliminary Ecological Appraisal.
http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/GPEA/GPEA_April_2013.pdf
British Standard BS42020: Biodiversity – Code of Practice for Planning and Development

7.0 Controls

This survey provides a 'snap-shot' of the assessed habitat and wildlife value of the site at the time of survey only and may require further survey effort to provide robust, scientifically valid evidence of species likely-absence.

Shelf-life - there is a lack of clarity about the period for which a PEA is accepted as being valid. Common practice dictates that most planning authorities will accept a survey report that is less than two years old (from the date of the field survey). Older surveys are likely to have to be refreshed by a further visit and report update.

8.0 Data Searches

A 2km Data Search has been carried out to determine any sites of nature conservation importance in the area and to reveal any existing biological records for the search area.

The full data search is provided in Appendix VI. Please note that the data search is to be treated as **CONFIDENTIAL** and is not suitable for release onto public registers. It should be removed from any documentation transferred onto publicly accessible registers. The data search is provided in full for officer verification purposes and should not be shared with officers not involved in the consent determination.

9.0 Date of the Survey

20th July 2015

10.0 Seasonality

The normal survey window for undertaking this type of evaluation is between mid-March and mid-October (south)/1st April and 30th September (north).

This survey was conducted within the normal survey window.

11.0 Informative

Table 1: Summary of Pertinent Legislation and Planning Policy Relevant to the Protection of Bats in the UK

Location of Site	Transposing EC Habitats Directive	Other Relevant Legislation	Planning Policy
England	Conservation of Habitats and Species Regulations 2010.	Wildlife and Countryside Act 1981 as amended. Countrywide and Rights of Way Act 2000. Natural Environment and Rural Communities Act 2006.	National Planning Policy Framework (“NPPF”).
Wales	Conservation of Habitats and Species Regulations 2010.	Wildlife and Countryside Act 1981 as amended. Countrywide and Rights of Way Act 2000. Natural Environment and Rural Communities Act 2006.	Technical Advice Note (“TAN”) 5.
Scotland	Conservation (Natural Habitat & c.) Regulations 1994 as amended.	Wildlife and Countryside Act 1981 as amended. The Nature conservation (Scotland) Act 2004.	National Planning Policy Guidance (“NPPG”) 14 and Planning Advice Note (“PAN”) 60.

A summary of legislation relevant to individual species can be found at Appendix IV.

12.0 The Survey Methodology

In order to fully assess the potential value of habitats at the site, the surveyor has employed widely accepted national standards set out in the JNCC (2010) publication Handbook for Phase 1 Habitat Survey: a technique for environmental audit.

The report includes for a Phase 1 Habitat Map (found at Appendix I), in addition to a full species list and target notes (found at Appendix II.)

Inspections make use of binoculars and cameras where appropriate.

1. The survey is performed during daylight hours. The site was surveyed on 20/07/15. The site was visited and the vegetation was mapped onto an Ordnance Survey Mastermap using standard colour codes for the ninety plus specified habitat types as defined in the JNCC guidelines. The surrounding land was similarly mapped but third-party land was only accessed where open and is assessed on the basis of what could be viewed from publically accessible areas.
2. Target notes were made for particular areas of interest and annotated onto the map.
3. An ecological “walkover” survey of the site was also conducted. The survey looks for direct and indirect evidenced (through sightings or field signs) of protected species and speculates on likely presence based upon habitat type and quality.

13.0 Protected Taxa Habitat Potential

Table 2: Species potential defined by integrating national guidelines e.g. Hundt 2012

Confirmed	Species are found to be present during the survey. Evidence of species' activity is found to be present during the survey.
High	Buildings, trees or other structures with features of particular significance for use by protected species e.g. nesting habitat, roosting opportunities, ponds. Habitat of high quality for foraging e.g. broadleaved woodland, tree-lined watercourses and grazed parkland. Site is connected with the wider landscape by strong linear features that would be used by commuting species e.g. river and or stream valleys and hedgerows. Site is close to known locations of records for protected species.
Medium	Several potential habitat opportunities in buildings, trees or other structures. Habitat could be used for foraging e.g. trees, shrub, grassland or water. Site is connected with the wider landscape by linear features that could be used by commuting species e.g. lines of trees and scrub or linked back gardens.
Low	A small number of less significant habitat opportunities. Isolated habitat for foraging e.g. a lone tree or patch of scrub. An isolated site not connected by prominent linear landscape features.
Negligible	No suitable habitats observed.

Table 2 (above) presents a scale continuum against which the significance of habitat value and opportunities for protected species at the site can be graded. By referring to this continuum and using their expert judgment, surveyors classify features such as habitats, buildings etc. as representing low, medium, high value or confirmed presence.

14.0 Survey Results

Table 3: Desk study results, habitats and species recorded on site

Desk Study Records	The survey preparation has been informed by the use of a desk study utilising:- aerial images from Google Earth, MAGIC and other freely available information e.g. Natural England’s nature on the map website, and OS Opendata 2010 using grid reference SU874686 and postcode RG12 9BY. MAGIC results within 2km: The site is in a nitrate vulnerable zone for surface water. Adjacent to the site to the north is an area of Deciduous Woodland Priority Habitat. Biological records have been ordered from Sussex Biodiversity Records Centre and can be found in Appendix VI.	
Local Environment	Site Location: The site is located in a residential area. The following features are present which are suitable for protected species:	
	Landscape Features	Present within 1km + notes (distances)
	Water Courses and water bodies	A drainage ditch runs approx. 160m east of the site the other side of an arable field.
	Woodlands	Deciduous woodland priority habitat lies adjacent to the north. Also approx. 540m south west is a small area of woodland.
	Linear Features e.g. tree lines, hedges, gardens	The site is connected to the wider habitat by tree lined fields and gardens.

	<u>Weather conditions at time of survey:</u> Temperature: 18°C. Cloud Cover: 100%. Precipitation: light. Wind: 1/8.	
Habitats	Description of Features	
A2 Scrub	The site has areas of dense scrub with <i>Salix</i> , <i>rubous fruticosa</i> , <i>Rosa canina</i> , and <i>Prunus spinosa</i> .	
B2 Neutral Grassland (semi-improved)	Where scrub is not present, areas of grassland dominate with species indicative of damp conditions. Some areas are dominated by <i>Pulicaria dysenterica</i> with <i>Stachys palustris</i> . Where grasses dominate these are predominantly <i>Holcus lanatus</i> , <i>Dactylis glomerata</i> , <i>Arrhenatherum elatius</i> , <i>Festuca arundinacea</i> and <i>Festuca pratensis</i> .	
A3 Parkland and Scattered Trees	The eastern tree line separates the site and arable land. Dominant species are <i>Corylus avellana</i> , <i>fraxinus excelsior</i> , <i>Acer campestre</i> and <i>Quercus robur</i> .	
Species	Species potential defined in Table 2.	Description of features suitable to support a population OR external habitat connectivity to the site
Invertebrates	Low	Vegetation on site provides invertebrate habitat which can be replaced and enhanced after development.
Amphibian	Negligible	Although the terrestrial habitat on site would be considered suitable for amphibians, there are no ponds present within 500m to provide suitable breeding habitat making it very unlikely that amphibians would be present.
Badger	Low	No badger setts were found to be present on site. A possible badger dropping was found the other side of the eastern tree line. Badgers could use the site for commuting and foraging.

Bat	Low	It is likely that bats are using the site for foraging and commuting. The tree line is to stay in place but extra lighting could disrupt bat activity. One ash tree was noted for its bat roosting potential, as the plans are currently understood this is not to be removed.
Barn Owl	Low	The grassland and scrub on site provide potential barn owl foraging habitat which will be lost.
Bird	Medium	The dense scrub and trees and long unmanaged grassland on site provide habitat for ground and tree nesting birds.
Other terrestrial mammals e.g. otter, water vole	Low	The eastern tree line provides potential habitat for dormice. As this tree line is to remain unaffected there should be no impact on this species. There is a single dormouse record in the area and this is approx. 2.4km north east and is not well connected to the site. It is possible that hedgehogs are using the site.
Reptile	Medium	The habitat on site represents good foraging areas, basking areas and refugia for reptiles. The long unmanaged grass and scrub with the wooded tree line create a mosaic of habitats that offer a range of foraging and shelter potential. Adjacent woodland and grassland to the north provides further habitat. The site is linked to the wider habitat by tree lines and gardens. There are records of slow worms, grass snakes, adders and common lizards within a 2km radius of the site.
Problematic Species	Negligible	None Found

A Phase 1 map can be found at Appendix I illustrating the habitats.

Table 4: Summary of Impacts

Habitat/Species concerned	Potential impact/loss?
Invertebrates	The grassland and scrub on site provide an expanse of invertebrate habitat which will be lost.
Amphibian	No impact. There are no ponds within 500m to provide suitable breeding habitat therefore it is very unlikely that species such as great crested newts would use the terrestrial habitat on site.
Badger	There are no badger setts on or within 30m of the site therefore the development will not have any impact on badger setts. Badgers could be using the site for foraging and commuting.
Bat	It is likely that bats are using the site for foraging and commuting. The tree line is to stay in place but extra lighting could disrupt bat activity. One ash tree was noted for its bat roosting potential, as the plans are currently understood this is not to be removed.
Barn Owl	The grassland and scrub on site provide potential barn owl foraging habitat which will be lost.

Bird	Nesting birds and eggs may be disturbed during tree and vegetation clearance.
Other terrestrial mammals e.g. otter, water vole	The eastern tree line provides potential habitat for dormice. As this tree line is to remain unaffected there should be no impact on this species.
Reptile	Loss of habitat and possible harm to reptiles. The habitat on site represents good foraging areas, basking areas and refugia for reptiles. The long unmanaged grass and scrub with the wooded tree line create a mosaic of habitats that offer a range of foraging and shelter potential. Adjacent woodland and grassland to the north provides further habitat. The site is linked to the wider habitat by tree lines and gardens. There are records of slow worms, grass snakes, adders and common lizards within a 2km radius of the site.
Problematic Species	None found.

15.0 Conclusions and Recommendations

The NPPF and ODPM Circular 06/05 require that planning decisions are based on complete and timely ecological information. Further, it is required by Natural England's 'Standing Advice' that protected species information must be available before a decision can be made.

Following this guidance, it is highly unlikely that the local planning authority will defer the provision of further protected species survey work as a condition of any planning consent.

On occasion, it can become necessary to perform further surveys even after planning consent is given, where there are extenuating circumstances e.g. if protected species or habitats are found at a later date. It is likely that the local planning authority will seek further surveys before planning consent is given because of this survey's findings.

However, separately to mitigating and compensating for unavoidable ecological impacts, government has made it clear through the NPPF and circular 06/05 that development requires the enhancement of the quantity and quality of biodiversity and habitat.

Where the local planning authority is minded to grant consent for the proposed development, some basic and cost effective forms of ecological enhancement could be adequately secured through the use of an appropriately worded condition. Suggestions for such measures are referred to below, in Table 5.

Table 5: Conclusions and Recommendations

Species/Habitats	Species potential defined in Table 2.	Conclusions	Recommendations	Enhancements under NPPF and Circular 06/05
Habitats	Low	The site is predominantly scrub and semi improved neutral grassland. All flora species and habitats found are common and widespread, no rare or unusual plants or habitats were found. The works are not close enough to or large enough in scope to affect any statutory sites. The grassland and scrub on site will be lost in the development.	No further surveys.	Native hedgerows and trees should be planted to increase the ecological value of the site. Wildflower areas should be added to create new habitat, encourage wildlife and increase biodiversity. Long grass and scrub boundaries should be created around the site to retain some of the original character.
Invertebrates	Low	The grassland and scrub on site provide an expanse of invertebrate habitat which will be lost.	No Further Surveys	Insect “hotels” can be installed to provide safe refuge for invertebrates. Wildflower areas

				will create foraging habitat. A buffer zone of long grassland around boundaries where possible will create further habitat. Dead wood piles half buried create breeding habitat for species such as stag beetles. These measures will improve invertebrate habitat on site and work towards encouraging more species thus increasing biodiversity.
Amphibian	Negligible	No impact. There are no ponds within 500m to provide suitable breeding habitat therefore it is very unlikely that species such as great crested newts would use the terrestrial habitat on site.	No further surveys.	A wildlife pond should be added on site to provide breeding habitat for amphibians.
Badger	Low	No badger setts were found to be present on site. A possible badger dropping was found the other side of the eastern tree line. Badgers could use	No further Surveys. However the	Fruit trees and bushes bearing berries can be

		the site for commuting and foraging.	following recommendations are given in order to mitigate against potential harm to badgers during the development works. - Any trenches dug should either be covered at night or have a rough sawn plank placed in them to act as a ramp for any wildlife which may fall in. - Security lighting to be directed away from the undergrowth. - Any chemicals or pollutants used or created by the development should be stored and disposed of correctly according to COSHH regulations.	added to the site to provide extra food for local badgers.
Bats	Low	It is likely that bats are using the site for foraging and commuting. The tree line is to stay in place but extra lighting could disrupt bat activity. One ash tree was noted for its bat roosting potential,	Lighting needs to be controlled around the new development.	Bat boxes will be installed on new buildings and/or retained trees.

		as the plans are currently understood this is not to be removed.	Lighting on the tree line along the eastern boundary of the site must not exceed 0.3 LUX. General lighting on site should all be on downward facing deflectors to minimize lighting impact.	Lighting should also be controlled around these. This will increase roosting opportunities for bats on site.
Barn Owl	Low	The grassland and scrub on site provide potential barn owl foraging habitat which will be lost.	No further surveys	A buffer zone of long grass and scrub around site boundaries where possible will retain some small mammal habitat which barn owls could use for foraging. A barn owl box will be erected on a tree along the eastern tree line.
Bird	Medium	The dense scrub and trees and long unmanaged grassland on site provide habitat for ground and tree nesting birds.	No further surveys. Any works which affect the trees and shrubs on site could have an impact on	Bird boxes should be added to new or retained trees.

			nesting birds. Since all in-use bird's nests and their contents are protected from damage or destruction, any tree and shrub removal should be undertaken outside the period 1st March to 31st August. If this time frame cannot be avoided, a close inspection of trees and shrubs to be removed should be undertaken prior to clearance. Work should not be carried out within 5.0m of any in-use nest and with an Ecological Clerk of Works present.	
Other mammals	Low	The eastern tree line provides potential habitat for dormice. As this tree line is to remain unaffected there should be no impact on this species. There is a single dormouse record in the area and this is approx. 2.4km north east and is not well connected to the site. It is possible that hedgehogs are using the site.	The eastern tree line must remain intact and unlit.	The eastern tree line will remain unaffected. This will allow dormice and other wildlife such as hedgehogs to continue to use

				this area as a green corridor. Fencing should be of open character to allow free movement of terrestrial mammals in and out of the site. This is particularly important along the northern and eastern boundaries.
Reptiles	Medium	The habitat on site represents good foraging areas, basking areas and refugia for reptiles. The long unmanaged grass and scrub with the wooded tree line create a mosaic of habitats that offer a range of foraging and shelter potential. Adjacent woodland and grassland to the north proves further habitat. The site is linked to the wider habitat by tree lines and gardens. There are records of slow worms, grass snakes, adders and common lizards within a 2km radius of the site.	Full Reptile Surveys. A minimum of 8 visits in suitable weather (9°C - 18 °C) are required, one of these is to set-up the survey. Common reptile species only receive limited statutory protection and are not classed as European Protected Species. As such a Planning Authority may Condition the reptile survey and any subsequent	Reptile refugia and long grass margins will be added to increase habitat for these animals in the long term. The proposed green space within the development will enable mitigation and compensation measures if reptiles are found during the necessary surveys. A full mitigation and compensation strategy will be

			mitigation plan (if required). Refuges are placed at regular intervals on site, and these are then checked in subsequent visits. These checks should be at least a week apart. This can be done starting from April, the season ending in October, with the optimal being April, May and September. Any reptiles are recorded. If reptiles are found, a reptile mitigation plan will need to be created for the site.	developed if reptiles are found to be using the site.
Problematic Species	Negligible	None found	No further surveys	None applicable.

16.0 Bibliography

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Paul Edgar, Jim Foster and John Baker (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation, Bournemouth

Tom Langton, Catherine Beckett and Jim Foster (2001). Great Crested Newt Conservation Handbook. Froglife. Suffolk.

17.0 Document Production and Approval Record

Status	Issue	Author/Reviewer	Date
Draft	1	Natalie Evans - Consultant Ecologist	21/07/15
Final	2	Natalie Evans	21/07/15
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Updated	4	Natalie Evans	23/09/15

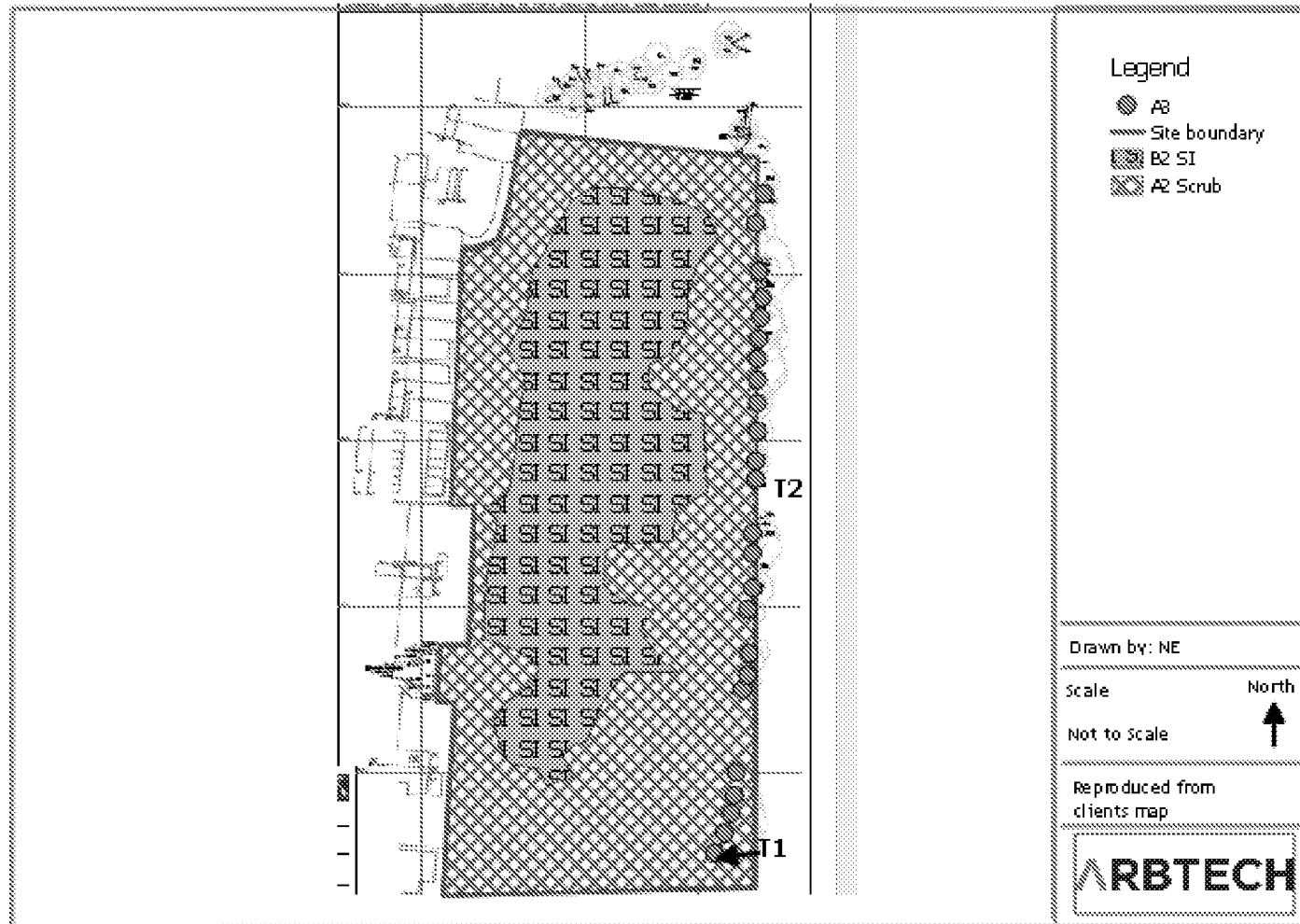
18.0 Limitations

Arbtech Consulting Ltd has prepared this report for the sole use of the above named Client or his agents in accordance with our General Terms and Conditions, under which our services are performed. It is expressly stated that no other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by us. This report may not be relied upon by any other party without the prior and express written agreement of Arbtech Consulting Limited. The assessments made assume that the sites and facilities will continue to be used for their current purpose without significant change. The conclusions and recommendations contained in this report may be based in part or whole upon information provided by third parties, which has not been independently verified by Arbtech Consulting Limited.

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Appendix I Phase 1 Habitat Map



Appendix II Species list and target notes

Common Name	Scientific Binomial
Perennial Ryegrass	<i>Lolium perenne</i>
Bramble	<i>Rubus fruticosus</i>
Ivy	<i>Hedera helix</i>
Blackthorn	<i>Prunus spinosa</i>
Hawthorn	<i>Crataegus monogyna</i>
Oak	<i>Quercus robur</i>
Broad leaved dock	<i>Rumex obtusifolius</i>
Creeping buttercup	<i>Ranunculus repens</i>
Creeping thistle	<i>Cirsium arvense</i>
Laurel	<i>Laurus sp.</i>
Plum	<i>Prunus spp.</i>
Field maple	<i>Acer campestre</i>
Elm	<i>Ulmus spp.</i>
Ash	<i>Fraxinus excelsior</i>
Hazel	<i>Corylus avellana</i>
Elder	<i>Sambucus nigra</i>
Hogweed	<i>Heracleum sphondylium</i>
Nettle	<i>Urtica dioica</i>
Willow	<i>Salix sp.</i>
Willowherb	<i>Epilobium spp.</i>
Greater plantain	<i>Plantago major</i>
Scented mayweed	<i>Matricaria chamomilla</i>
Yorkshire fog	<i>Holcus lanatus</i>

Cocks foot	<i>Dactylis glomerata</i>
Dog rose	<i>Rosa canina</i>
Self heal	<i>Prunella vulgaris</i>
False oat grass	<i>Arrhenatherum elatius</i>
Timothy	<i>Phleum pratense</i>
Rough meadowgrass	<i>Poa trivialis</i>
Perforate St. John's wort	<i>Hypericum perforatum</i>
Common vetch	<i>Vicia sativa</i>
Meadow foxtail	<i>Alopecurus pratensis</i>
March woundwort	<i>Stachys palustris</i>
Common fleabane	<i>Pulicaria dysenterica</i>
Silver birch	<i>Betula pendula</i>
Pineapple weed	<i>Matricaria discoidea</i>
Red fescue	<i>Festuca rubra</i>
Meadow fescue	<i>Festuca pratensis</i>
Teasel	<i>Dipsacus</i> spp.
Sycamore	<i>Acer pseudoplatinus</i>
Hedge bindweed	<i>Calystegia sepium</i>
Cleavers	<i>Gallium</i> spp.
Hedge mustard	<i>Sisymbrium officinale</i>

Target notes:

T1 - ash tree with cavity potentially suitable for bat roosting

T2 - badger dropping.

Appendix III Site Photos



Figure 1: site facing south west in long grass area.



Figure 2: site facing north along footpath.



Figure 3: site facing south west along footpath.



Figure 4: ash tree in south east corener with potential roosting cavity.



Figure 5: eastern boundary.

Appendix IV Summary of Legislation for Various Species

Conservation Status of British Bats

The general consensus in Britain and Europe is that virtually all bat species are declining and vulnerable. Our understanding of population status is poor as there is very little historical data for most bat species. Certain species, such as the horseshoe bats, are better understood and have well documented contractions in range and population size.

Given this general picture of decline in UK Government within the UK Biodiversity Action Plan has designated five species of bats as priority species (greater and lesser horseshoe bats, barbastelle, Bechstein's and pipistrelle). These plans provide an action pathway whereby the maintenance and restoration of the former populations levels are investigated.

Legal Status of British Bats

Given the above position all British bats as well as their breeding sites and resting places enjoy national and international protection.

All bat species in the UK are fully protected under the Wildlife and Countryside Act 1981 (as amended) through inclusion in Schedule 5. All bats are also listed on Annex IV (and some on Annex II) of the EC Habitats Directive giving further, European protection. Taken together the act and Conservation of Habitats and Species Regulations 2010* make it an offence to; intentionally or deliberately kill, injure or capture (take) bats;

- Deliberately disturb bats (whether in a roost or not);
- Damage, destroy or obstruct access to bat roosts;
- Possess or transport a bat or any part of a bat, unless acquired legally;
- Sell, barter or exchange bats, or parts of bats

The legislation although not strictly affording protection to foraging grounds does protect roost sites. Bat roosts are protected at all times of the year whether or not bats are present. Any disturbance of a roost due to development must be licenced.

**the regulations that delivered by the UK's commitments to the Habitats Directive.*

Breeding birds

All nesting birds are protected under the Wildlife and Countryside Act (as amended) 1981, which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. Furthermore a number of birds enjoy further protection under that Act and are listed on Schedule 1 of the Act. These further protected birds are also protected from disturbance and it may be necessary to operate "no-go" buffer zones around such nests - typically out to 100m.

Planning policy guidance on the treatment of species identified as priorities under the biodiversity action programme suggests that local authorities should take measures to protect the habitats of these species from further decline through policies in local development documents and should ensure that they are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations. The conservation of these species should be promoted through the incorporation of beneficial biodiversity designs within developments.

Bats

All 18 species of bat common in the UK (17 known to be breeding) are fully protected under the Wildlife and Countryside Act (as amended) 1981 through inclusion in Schedule V of the Act. All bat

species in the UK are also included in Schedule II of the Habitats Regulations 2010 which transpose Annex II of the Council Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (“EC Habitats Directive”) which defines European protected species of animals.

Bats species are afforded further protection by the Countryside and Rights of Way Act 2000; and the Natural Environment and Rural Communities Act 2006.

This combined legislation makes it an offence to:

Intentionally or deliberately kill, injure or capture bats.

Deliberately disturb bats, whether at roost or not.

Damage, destroy or obstruct access to bat roosts.

Possess or transport bats, unless acquired legally.

Sell, barter or exchange bats.

A bat roost is defined by the Bat Conservation Trust publication Bat Surveys—Good Practice Guidelines 2nd Edition as “the resting place of a bat” (BCT 2012). Generally however, the word roost is interpreted as “any structure or place, which any wild bat uses for shelter or protection.”

Bats tend to re-use the same roosts; therefore legal opinion is guided by recent case law precedents², that a roost is protected whether or not the bats are present at the time. This can include for summer roosts, used for breeding; or winter roosts, used for hibernating.

Common Birds

All common wild birds are protected under The Wildlife and Countryside Act 1981.

This legislation makes it an offence to:

Kill, injure or take wild birds.

Take, damage or destroy the nest of wild birds while it is in use or being built.

Take or destroy the eggs of wild birds.

Certain rare breeding birds are listed on Schedule I of The Wildlife and Countryside Act 1981. Under this legislation they are afforded the same protection as common wild birds and are also protected against disturbance whilst building a nest or on or near a nest containing eggs and or unfledged young e.g. Barn Owl *Tyto alba*.

² Internet search for e.g. the Woolley case (R. Simon Woolley v. Cheshire East Borough Council) and see here: http://www.naturalengland.org.uk/Images/WoolleyVsCheshireEastBC_tcm6-12832.pdf

Reptiles

There are six species of reptiles in Great Britain (Edgar et al. 2010) and four of these are commonly found; the grass snake *Natrix natrix*, adder *Viper aberus*, common lizard *Zootoca vivipara* and slow worm *Anguis fragilis* (“common reptiles.”)

All native British species of reptiles are legally protected through their inclusion in Schedule V of the Wildlife and Countryside Act 1981. As such, all species are protected from deliberate killing or injury. Therefore, where development is permitted, and there will be a significant change in land use, a reasonable effort must be undertaken to avoid committing an offence. The same act makes the trading of native reptile species a criminal offence without appropriate licensing.

Two species of reptile; the smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*, are further protected through their inclusion in Schedule II of the Habitats Regulations 2010 which transposes Annex II of the Council Directive 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (“EC Habitats Directive”), which defines European protected species of animals (“rare reptiles.”)

This legislation makes it an offence to:

Intentionally or deliberately kill, injure common and rare reptiles.

Deliberately disturb or capture rare reptiles.

Damage, destroy or obstruct access to rare reptile habitat.

Possess or transport a rare reptile or any part of a rare reptile, unless acquired legally.

Sell, barter or exchange common and rare reptiles.

Rare reptile species occupy only highly restricted ranges in the extreme south east of coastal England, with isolated populations of sand lizard in e.g. coastal Wales and Cornwall. Smooth snake populations are isolated to lowland heaths in e.g. Surrey, Hampshire, Dorset and West Sussex.

Badgers

Badgers *Meles meles* are vulnerable to baiting, hunting and the detrimental impacts of development on their habitat. Both the badger and its habitat are protected under The Protection of Badgers Act 1992, Schedule V of the Wildlife and Countryside Act 1981, and Appendix III of the Bern Convention 1979.

This legislation makes it an offence to:

Kill, injure, take or possess a badger.

Interfere with, damage or destroy a badger sett including e.g. obstruct access to a badger sett.

Cruelly treat or harm a badger.

Disturb a badger in a sett.

Penalties for offences are documented (NE 2010) as fines of up to £5,000 and imprisonment for each illegal sett interference or damage or death to a badger.

Great Crested Newts

Populations of great crested newts *Triturus cristatus* declined considerably in the late twentieth century (Langton et al. 2001) due to the intensification of agriculture. They require ponds with good water quality and as they spend most of their life on land these ponds must be surrounded by high quality terrestrial habitat.

Great crested newts are listed in both Annex IV of the EC Habitats Directive and in Schedule V of the Wildlife and Countryside Act 1981.

GCN are afforded further protection by the Countryside and Rights of Way Act 2000; and the Natural Environment and Rural Communities Act 2006.

This combined legislation makes it an offence to:

Deliberately kill, injure or capture a great crested newt.

Deliberately disturb a great crested newt.

Damage, destroy or obstruct access to a structure used for shelter or protection by a great crested newt.

Possess or transport a great crested newt.

Appendix V

European Protected Species

Species	Type
Horseshoe Bats	All
Typical bats	All
Large blue butterfly	<i>Felis silvestris</i>
Dolphins, porpoises and whales	All
Dormouse	<i>Muscardinus avellanarius</i>
Sand lizard	<i>Lacerta agilis</i>
Great Crested Newt	<i>Triturus cristatus</i>
Otter	<i>Lutra lutra</i>
Smooth snake	<i>Coronella austriaca</i>
Sturgeon fish	<i>Acipenser sturio</i>
Natterjack toad	<i>Bufo calamita</i>
Marine turtles	<i>Caretta spp</i> , <i>Lepidochelys kempii</i> , <i>Eretmochelys imbricate</i> , <i>Dermochelys coriacea</i>
Shore dock	<i>Rumex rupestris</i>
Killarney fern	<i>Trichomanes speciosum</i>
Early gentian	<i>Gentianella angelica</i>
Lady's slipper	<i>Cypripedium calceolus</i>
Creeping marshwort	<i>Apium repens</i>
Slender naiad	<i>Najas flexilis</i>
Fen Orchid	<i>Liparis loeselii</i>
Floating-leaved water plantain	<i>Luronium natans</i>
Yellow marsh saxifrage	<i>Saxifraga hirculus</i>

Nationally Protected Species

Species - Schedule 5 of the Wildlife and Countryside Act 1981	Latin Name
Adder 1	<i>Vipera berus</i>
Allis Shad2	<i>Alosa alosa</i>
Anemone, Ivell's Sea	<i>Edwardsia ivelli</i>
Anemone, Starlet Sea	<i>Nematosella vectensis</i>
Apus	<i>Triops cancriformis</i>
Bats, Horseshoe (all species)	<i>Rhinolophidae</i>
Bats, Typical (all species)	<i>Vespertilionidae</i>
Beetle	<i>Graphoderus zonatus</i>
Beetle	<i>Hypebaeus flavipes</i>
Beetle	<i>Parcymus aeneus</i>
Beetle, Lesser Silver Water	<i>Hydrochara caraboides</i>
Beetle, Mire Pill3	<i>Curimopsis nigrita</i>
Beetle, Rainbow Leaf	<i>Chrysolina cerealis</i>
Beetle, Stag4	<i>Lucanus cervus</i>
Beetle, Violet Click	<i>Limoniscus violaceus</i>
Burbot	<i>Lota lota</i>
Butterfly, Northern Brown Argus	<i>Aricia artaxerxes</i>

Butterfly, Adonis Blue ⁶	<i>Lysandra bellargus</i>
Butterfly, Chalkhill Blue ⁷	<i>Lysandra coridon</i>
Butterfly, Silver-studded Blue ⁸	<i>Plebejus argus</i>
Butterfly, Small Blue ⁹	<i>Cupido minimus</i>
Butterfly, Large Copper	<i>Lycaena dispar</i>
Butterfly, Purple Emperor ¹⁰	<i>Apatura iris</i>
Butterfly, Duke of Burgundy Fritillary ¹¹	<i>Hamearis lucina</i>
Butterfly, Glanville Fritillary ¹²	<i>Melitaea cinxia</i>
Butterfly, Heath Fritillary	<i>Melicta athalia</i>
Butterfly, High Brown Fritillary	<i>Argynnis adippe</i>
Butterfly, Marsh Fritillary ¹³	<i>Eurodryas aurinia</i>
Butterfly, Pearl-bordered Fritillary ¹⁴	<i>Boloria euphrosyne</i>
Butterfly, Black Hairstreak ¹⁵	<i>Strymonidia pruni</i>
Butterfly, Brown Hairstreak ¹⁶	<i>Thecla betulae</i>
Butterfly, White Letter Hairstreak ¹⁷	<i>Stymonida w-album</i>
Butterfly, Large Heath ¹⁸	<i>Coenonympha tullia</i>
Butterfly, Large Blue	<i>Maculinea arion</i>
Butterfly, Mountain Ringlet ¹⁹	<i>Erebia epiphron</i>
Butterfly, Chequered Skipper ²⁰	<i>Carterocephalus palaemon</i>
Butterfly, Lulworth Skipper ²¹	<i>Thymelicus acteon</i>
Butterfly, Silver Spotted Skipper ²²	<i>Hesperia comma</i>
Butterfly, Swallowtail	<i>Papilio machaon</i>
Butterfly, Large tortoiseshell ²³	<i>Nymphalis polychloros</i>
Butterfly, Wood White ²⁴	<i>Leptidea sinapis</i>
Cat, Wild	<i>Felis silverstris</i>
Cicada, New Forest	<i>Cicadetta montana</i>
Crayfish, Atlantic Stream (White-clawed) ²⁵	<i>Austropotamobius pallipes</i>
Cricket, Field	<i>Gryllus campestris</i>
Cricket, Mole	<i>Gryllotalpa gryllotalpa</i>
Damselfly, Southern	<i>Coenagrion mercuriale</i>
Dolphin, Bottle-nosed	<i>Tursiops truncatus</i>
Dolphin, Common	<i>Delphinus delphis</i>
Dormouse	<i>Muscardinus avellanarius</i>
Dragonfly, Norfolk Aeshna	<i>Aeshna isosceles</i>
Frog, Common ²⁶	<i>Rana temporaria</i>

Goby, Couch's	<i>Gobius couchii</i>
Goby, Giant	<i>Gobius cobitis</i>
Grasshopper, Wart-biter	<i>Decticus verrucivorus</i>
Hatchet Shell, Northern	<i>Thyasira gouldi</i>
Hydroid, Marine	<i>Clavopsella navis</i>
Lagoon Snail	<i>Paludinella littorina</i>
Lagoon Snail, De Folin's	<i>Caecum armoricum</i>
Lagoon Worm, Tentacled	<i>Alkmaria romijni</i>
Leech, Medicinal	<i>Hirudo medicinalis</i>
Lizard, Sand	<i>Lacerta agilis</i>
Lizard, Viviparous ²⁷	<i>Lacerta vivipara</i>
Marten, Pine	<i>Martes martes</i>
Mat, Trembling Sea	<i>Victorella pavida</i>
Moth, Barberry Carpet	<i>Pareulype berberata</i>
Moth, Black-veined	<i>Siona lineata</i>
Moth, Essex Emerald	<i>Thetidia smaragdaria</i>
Moth, Fiery Clearwing	<i>Bembecia chrysidiformis</i>
Moth, Fisher's Estuarine	<i>Gortyna borelii</i>
Moth, New Forest Burnet	<i>Zygaena viciae</i>
Moth, Reddish Buff	<i>Acosmetia caliginosa</i>
Moth, Sussex Emerald	<i>Thalera fimbrialis</i>
Mussel, Fan ²⁸	<i>Atrina fragilis</i>
Mussel, Freshwater Pearl	<i>Margaritifera margaritifera</i>
Newt, Great Crested	<i>Triturus cristatus</i>
Newt, Palmate	<i>Triturus helveticus</i>
Newt, Smooth	<i>Triturus vulgaris</i>
Otter, Common	<i>Lutra lutra</i>
Porpoise, Harbour	<i>Phocaena phocaena</i>
Sandworm, Lagoon	<i>Armandia cirrhosa</i>
Sea Fan, Pink ³¹	<i>Eunicella verrucosa</i>
Sea horse, Short-snouted ³²	<i>Hippocampus hippocampus</i>
Sea horse, Spiny ³³	<i>Hippocampus guttulatus</i>
Sea Slug, Lagoon	<i>Tenellia adspersa</i>
Shad, Twaite ³⁴	<i>Alosa fallax</i>
Shark, Basking	<i>Cetorhinus maximus</i>

Shark, Angel ³⁵	<i>Squatina squatina</i>
Shrimp, Fairy	<i>Chirocephalus diaphanus</i>
Shrimp, Lagoon Sand	<i>Gammarus insensibilis</i>
Slow-worm ³⁶	<i>Anguis fragilis</i>
Snail, Glutinous	<i>Myxas glutinosa</i>
Snail, Roman ³⁷	<i>Helix pomatia</i>
Snail, Sandbowl	<i>Catinella arenaria</i>
Snake, Grass ³⁸	<i>Natrix helvetica</i>
Snake, Smooth	<i>Coronella austriaca</i>
Spider, Fen Raft	<i>Dolomedes plantarius</i>
Spider, Ladybird	<i>Eresus niger</i>
Squirrel, Red	<i>Sciurus vulgaris</i>
Sturgeon	<i>Acipenser sturio</i>
Toad, Common ³⁹	<i>Bufo bufo</i>
Toad, Natterjack	<i>Bufo calamita</i>
Turtles, Marine (all species)	<i>Dermochelyidae</i> and <i>Cheloniidae</i>
Vendace	<i>Coregonus albula</i>
Vole, Water	<i>Arvicola terrestris</i>
Walrus	<i>Odebenus rosmarus</i>
Whale (all species)	Cetacea
Whitefish	<i>Coregonus lavaretus</i>

Appendix VI

Biological records data from SxBRC - this information is confidential and must not be passed on to any third parties and must be removed before this document becomes accessible to the public.

Please find full records attached.