



Gladman Developments Ltd.

**Land off Duke's Park, Woodbridge**

**ECOLOGICAL APPRAISAL**

November 2015

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**FPCR Environment and Design Ltd**

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**CONTENTS**

1.0	INTRODUCTION .....	6
2.0	METHODOLOGY.....	6
3.0	RESULTS.....	13
4.0	DISCUSSION AND RECOMMENDATIONS .....	23
5.0	NON-TECHNICAL SUMMARY .....	36
6.0	APPENDICES .....	37

**TABLES**

Table 1: Bat Survey Protocol for Trees

Table 2: HSI Score and Suitability

Table 3: County Wildlife Sites within 1km of the Site

Table 4: Summary of the Extent of the Hedgerows and their Ecological Value

Table 5: Summary of Mature Trees

Table 6: Current Public Access to Nearby County Wildlife Sites

**FIGURES**

Figure 1: Designated Sites Consultation Results Plan

Figure 2: Protected and Notable Species Consultation Results Plan

Figure 3: Phase 1 Habitat Plan

Figure 4: Waterbody Plan

**APPENDICES**

Appendix 1: Target Notes

Appendix 2: Hedgerow Survey Sheets

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## 1.0 INTRODUCTION

- 1.1 Gladman Developments Ltd. commissioned FPCR Environment and Design Ltd. to undertake an ecological appraisal of an area of land, 12.67 ha in size, located immediately to the west of the residential area of Duke's Park, Woodbridge, Suffolk. This was associated with a proposal to promote the land, via an outline planning application, for residential development for up to 215 dwellings with associated infrastructure and landscaping.
- 1.2 The objective of the study was to make an initial investigation to determine habitats and species present within a defined boundary (hereafter referred to as the Site) and to make an initial assessment of their ecological value and any potential ecological constraints to the proposed development. Additional objectives were, where appropriate, to identify the need for additional surveys and to consider opportunities for ecological mitigation and enhancements within any future development design.
- 1.3 This appraisal has also considered features beyond the site boundary. The extent of this additional study in terms of distance from the site is discussed in Section 2. For reference, the Site and this wider area of consideration are collectively referred to as the 'study area' within this report.

## 2.0 METHODOLOGY

### Overview

- 2.1 The appraisal process has largely followed that recommended by the Chartered Institute of Ecology and Environmental Management (CIEEM)<sup>1</sup>. In summary the key parts of that process have been;
  - a) Gathering baseline ecological information via a desktop study and a field survey;
  - b) Evaluation of the baseline information; and
  - c) Discussion of the results and subsequent recommendations.
- 2.2 The appraisal approach has also considered guidance provided by Suffolk Coastal District Council on the validation of planning applications<sup>2</sup> and associated guidance<sup>3,4</sup> on local requirements for biodiversity.

<sup>1</sup> CIEEM. (2013). *Guidelines for Preliminary Ecological Appraisal*. [online]. Winchester:CIEEM. Available at: <http://www.cieem.net/guidance-on-preliminary-ecological-appraisal-gpea-> [Accessed 04/11/2015].

<sup>2</sup> Suffolk Coastal District Council. (2014). *How to make sure that your planning application includes all the required information when submitted*. [online]. Available at: <http://www.suffolkcoastal.gov.uk/assets/Documents/District/Planning-DM/Validation-2014/PlanningApplicationValidationGuidanceNovember2014.pdf> [Accessed 04/11/2015].

<sup>3</sup> Suffolk Biodiversity Partnership. (undated). *Guidance on Local Requirements for Biodiversity and Geodiversity – Table 1: Protected Species and Species of Principal Importance*. [online]. Available at: <http://www.suffolkcoastal.gov.uk/assets/Documents/District/Planning-DM/Validation/1APPLocalRequirementForProtectedSpecies.pdf> [Accessed 04/11/2015].

<sup>4</sup> Suffolk Biodiversity Partnership. (undated). *Guidance on Local Requirements for Biodiversity and Geodiversity – Table 2: Designated Sites and Suffolk BAP Priority Habitats*. [online]. Available at: <http://www.suffolkcoastal.gov.uk/assets/Documents/District/Planning-DM/Validation/LocalRequirementsForPriorityHabitats.pdf> [Accessed 04/11/2015].

## Desk Study

- 2.3 In order to compile existing baseline information for the study area, relevant ecological information was requested from Suffolk Biological Records Centre (SBRC).
- 2.4 In addition, the following resources were interrogated for additional information and context;
- Multi Agency Geographic Information for the Countryside (MAGIC) website<sup>5</sup>
  - Colour 1:25,000 OS base maps<sup>6</sup>
  - Aerial photographs from Google Earth<sup>7</sup>.
- 2.5 The geographical extent of the search area for biodiversity information was related to the significance of sites and species and potential zones of influence which might arise from development within the Site; the following scales of search were considered to be appropriate:
- 10km around the Site boundary for sites of International Importance (e.g. Special Area of Conservation, Special Protection Area, Ramsar site)
  - 2km around the Site boundary for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest)
  - 1km around the Site for non-statutory designated sites of County Importance and for notable species records (e.g. protected species, 'species of principal importance' and other notable species). This search involved requesting information for each 1km grid square in which the study area falls, plus information from each 1 km grid square adjoining these.

## Field Survey

### Overview

- 2.6 The field survey element was undertaken on 13<sup>th</sup> March and 4<sup>th</sup> August 2014 by an appropriately experienced and qualified FPCR ecologist.

### Habitats

- 2.7 Survey methods followed the extended Phase 1 Survey technique as recommended by Natural England<sup>8</sup>. This involved a systematic walk over of the site to classify the broad habitat types and identify any 'habitats of principal importance' for the conservation of biodiversity as listed within Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act (2006)<sup>9</sup>.
- 2.8 Hedgerows were surveyed using the Hedgerow Evaluation and Grading System (HEGS)<sup>10</sup>. This method of assessment includes noting down canopy species composition, associated ground flora and climbers, structure of the hedgerow including; height, width and gaps, along with

<sup>5</sup> [Online]. <http://magic.defra.gov.uk/> [Accessed 04/10/2015]

<sup>6</sup> [Online]. [www.ordnancesurvey.co.uk](http://www.ordnancesurvey.co.uk) [Accessed 01/10/2015]

<sup>7</sup> [Online]. [www.maps.google.co.uk](http://www.maps.google.co.uk) [Accessed 01/10/2015]

<sup>8</sup> JNCC. (1990). *Handbook for Phase 1 habitat survey – a technique for environmental audit*. Peterborough: JNCC

<sup>9</sup> *The Natural Environment and Rural Communities Act 2006*. [Online]. London:HMSO Available at: <http://www.legislation.gov.uk/ukpga/2006/16/contents> [Accessed 04/11/2015]

<sup>10</sup> Clements, D. & Toft, R. (1992). *Hedgerow Evaluation and Grading System (HEGS) – a methodology for the ecological survey, evaluation and grading of hedgerows*. Countryside Planning and Management



associated features such as; the number and species of mature trees, banks, ditches and grass verges.

- 2.9 Each hedgerow is given a grade using HEGS with the suffixes '+' and '-', representing the upper and lower limits of each grade respectively. These grades represent a continuum on a scale from 1+ (the highest score and denoting hedges of the greatest nature conservation priority) to 4- (representing the lowest score and hedges of the least nature conservation priority) as follows:

- Grade 1 – High to very high value;
- Grade 2 – Moderately high to high value;
- Grade 3 – Moderate value; and
- Grade 4 – Low value.

Hedgerows graded 1 or 2 are considered to be a priority for nature conservation.

- 2.10 The hedgerows were also assessed against the Wildlife and Landscape criteria contained within Statutory Instrument No: 1160 – The Hedgerow Regulations 1997<sup>11</sup> to determine whether they qualified as 'Important Hedgerows' under the Regulations. This was achieved using a methodology in accordance with both the Regulations and DEFRA guidance<sup>12</sup>.
- 2.11 Mature trees within the Site were assessed for their status as veteran trees using DEFRA<sup>13</sup> and Natural England<sup>14</sup> guidance.

### Species

- 2.12 During the survey, observations, identification and signs of any species protected under the following list of Acts and Regulations were noted:
- Part 1 of the Wildlife and Countryside Act 1981 (as amended)<sup>15</sup>;
  - The Protection of Badgers Act 1992<sup>16</sup>;
  - The Conservation of Habitats and Species Regulations 2010<sup>17</sup>; and
  - The (NERC) Act (2006) – S41 species of principal importance for the conservation of biodiversity.
- 2.13 Given the nature of the habitats within and immediately surrounding the Site, particular consideration was given to the potential presence of birds, bats, badger *Meles meles*, amphibians and reptiles.

<sup>11</sup> *The Hedgerow Regulations 1997 – Statutory Instrument 1997 No. 1160*. [Online]. London: HMSO. Available at: <http://www.legislation.gov.uk/uksi/1997/1160/contents/made> [Accessed 04/11/2015].

<sup>12</sup> DEFRA. (1997). *The Hedgerow Regulations 1997. A Guide to the Law and Good Practice*. London: HMSO

<sup>13</sup> Rural Development Service. (2006). *Environmental Stewardship-Farm Environment Plan Guidance 009*.

<sup>14</sup> Natural England. (1999). *Veteran Trees –A Guide to Good Management*. [Online]. Available at <http://publications.naturalengland.org.uk/publication/75035> [Accessed 04/11/2015].

<sup>15</sup> *The Wildlife and Countryside Act 1981 (as amended)*. [Online]. London:HMSO Available at <http://www.legislation.gov.uk/ukpga/1981/69> [Accessed 04/11/2015]

<sup>16</sup> *The Protection of Badgers Act 1992 (as amended)*. [Online]. London: HMSO Available at: <http://www.legislation.gov.uk/ukpga/1992/51/contents> [Accessed 04/11/2015].

<sup>17</sup> *The Conservation of Habitats and Species Regulations 2010 – Statutory Instrument 2010 No.490*. [Online]. London:HMSO. Available at [http://www.legislation.gov.uk/uksi/2010/490/pdfs/uksi\\_20100490\\_en.pdf](http://www.legislation.gov.uk/uksi/2010/490/pdfs/uksi_20100490_en.pdf) [Accessed 04/11/2015].

- 2.14 In addition to evidence of field signs, the suitability of habitats to support these species was assessed, for example the suitability of mature trees to support roosting bats.
- 2.15 Additional species records were made during the survey to make an initial appraisal of the presence of other species of nature conservation importance. For example; bird records were made to determine the presence of any species of conservation concern<sup>18</sup>.

### Bats

#### Ground Assessments

- 2.16 Tree assessments were undertaken from ground level, with the aid of a torch and binoculars where required, on all trees on site on 16<sup>th</sup> September 2014. During the survey features considered to provide suitable roost sites for bats such as the following were sought:
- Trunk cavity – Large hole in trunk caused by rot or injury;
  - Branch cavity - Large hole in branch caused by rot or injury;
  - Trunk split – Large split / fissure in trunk caused by rot or injury;
  - Branch split – Large split / fissure in branch caused by rot or injury;
  - Branch socket cavity – Where a branch has fallen from the tree and resulted in formation of an access point in to a cavity;
  - Woodpecker hole – Hole created by nesting birds suitable for use by roosting bats;
  - Lifted bark – Areas of bark which has rotted / lifted to form suitable access point/roost site for bats;
  - Hollow trunk – Decay in heartwood leading to internal cavity in trunk;
  - Hazard beam failure- Where a section of the tree stem/branch has failed causing collapse and leading to longitudinal fractures / splits / cracks along its length; and
  - Ivy cover – Dense / mature ivy cover where the woody stems could create small cavities / crevices.
- 2.17 The trees were classified into general bat roost potential groups based on the presence of features listed above. Table 1 below classifies the potential categories as accurately as possible. This table is based upon Table 8.4 in Bat Surveys- Good Practice Guidelines (Bat Conservation Trust, 2012)

<sup>18</sup> Eaton, M.A., Brown, A.F., Noble, D.G., Musgrove, A.J., Hearn, R.D., Aebischer, N.J., Gibbons, D.W., Evans, A. & Gregory, R.D. (2009). Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 102:296-341.

Table 1: Bat Survey Protocol for Trees

Tree category and description	Survey requirements prior to determination.	Recommended mitigation works and/or further surveys.
<b>Category 1</b> Confirmed bat roost with field evidence of the presence of bats, e.g. live / dead bats, droppings, scratch marks, grease marks and / or urine staining.	Identified on a plan and in the field. Further assessment such as climb and inspect and/or dusk/dawn surveys should be undertaken, if the trees are affected by the development, to provide an assessment on the likely use of the roost, numbers and species of bat present.	Avoid disturbance where possible. Felling or other works that would affect the roost would require an EPS licence with like for like roost replacement as a minimum. Works may also be subject to timing constraints.
<b>Category 2a</b> Trees that have a high / moderate potential to support bat roosts.	Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats. Where the tree will be affected by the proposed development, further assessment such as climb and inspect and/or dusk/dawn surveys (up to 2/3 nocturnal surveys) should be undertaken (as appropriate), if the trees are affected by the development, to ascertain presence/absence of roosting bats. Trees may be upgraded if presence of roosting bats is confirmed or downgraded following further surveys if features present are of low suitability and / or no evidence of a breeding site or resting place * is found within features that can be assessed fully.	<p><b>Trees where no bat roost confirmed after further surveys:</b> Avoid disturbance where possible. In situations where disturbance cannot be avoided and where no evidence of occupation of suitable cavities has been confirmed during the initial surveys or nocturnal surveys (as appropriate), further precautionary survey work following the granting of planning permission and prior to works being completed is recommended to ensure features have not been occupied by bats.</p> <p>The additional precautionary survey work could comprise further nocturnal surveys during the active bat season immediately prior to felling or management works or the completion of additional aerial inspections. Use "soft felling" techniques, removing ivy cover by hand and avoid cutting through tree cavities is recommended once the presence of a roost has been discounted.</p>
<b>Category 2b</b> Trees with a low potential to support bat roosts.	Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats. Where the tree will be affected by the proposed development, further assessment such as climb and inspect and/or dusk/dawn surveys (one nocturnal survey) should be undertaken (as appropriate), if the trees are affected by the development, to ascertain presence/absence of roosting bats. Trees may be upgraded if presence of roosting bats is confirmed or downgraded following	<p><b>Trees where no bat roost confirmed after further surveys:</b> Avoid disturbance where possible. In situations where disturbance cannot be avoided and where no evidence of occupation of suitable cavities has been confirmed during the initial surveys or nocturnal surveys (as appropriate), further precautionary survey work following the granting of planning permission and prior to works being completed is recommended to ensure features have</p>

Tree category and description	Survey requirements prior to determination.	Recommended mitigation works and/or further surveys.
	further surveys if features present are not suitable for bats and / or no evidence of a breeding site or resting place* is found within features that can be assessed fully...	not been occupied by bats.  The additional precautionary survey work could comprise further nocturnal surveys during the active bat season immediately prior to felling or management works or the completion of additional aerial inspections. Use "soft felling" techniques, removing ivy cover by hand and avoid cutting through tree cavities is recommended once the presence of a roost has been discounted.
<b>Category 3</b> Trees with no / negligible potential to support bat roosts.	Identified on a plan and in the field to assess the potential use of suitable cavities, based on the habitat preferences of bats.	None.

\* The Conservation of Habitats & Species Regulations 2010 (as amended) affords protection to breeding sites or resting places at all times. For an area to be classified as a breeding site or resting place, the Regulations require there to be a reasonably high probability that the species will return to the sites and / or place.

Confirmation of a breeding site or resting place in trees can be established through the completion of aerial inspection and / or nocturnal surveys (as appropriate). In situations where nocturnal surveys are completed and a breeding site or resting site is not confirmed, the survey effort is considered to be sufficient to reasonably discount the presence of roosting bats (for a period of time as defined in Natural England's current Standing Advice).. However, further precautionary works may be recommended if the trees is affected by works

Where features of a tree are identified as providing potential to be used as a breeding site or resting place, evidence of current or previous use of the feature should be identified during an aerial inspection to necessitate the completion of further detailed nocturnal survey work prior to the granting of planning permission. In situations where no evidence of use is identified it is reasonable to conclude that a feature is not being used as a breeding site or resting place as defined by the Regulations but further precautionary measures maybe recommended if a tree is affected by development to ensure occupation has not occurred following completion of the survey. If the presence of a breeding site or resting place cannot be discounted from ground level or aerial inspections, nocturnal survey work to confirm the presence of a breeding site or resting place should be completed.

## Amphibians

### Habitat Suitability Index

- 2.18 Using aerial photography and OS mapping, the desk study identified the locations of waterbodies within 500m of the site boundary. Any that were separated from the site by a feature considered to represent a major barrier for amphibians to cross (e.g. a major road with kerbs) were then discounted from further investigation. Where access was possible, the remaining waterbodies within 500m of the site boundary were assessed for their potential to support great crested newt *Triturus cristatus*, using the Habitat Suitability Index (HSI)<sup>19</sup>.
- 2.19 The HSI provides a measure of the likely suitability that a waterbody has for supporting newts. Generally, waterbodies with a higher score are more likely to support great crested newts than those with a lower score, and there is a positive correlation between HSI scores and waterbodies with newts recorded. Ten separate attributes were assessed for each waterbody to calculate its suitability to support great crested newt:

<sup>19</sup> Oldham, R.S., Keeble, J., Swan, M.J.S. & Jeffcote, M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10 (4), 143-155

- Geographic location;
- Pond area;
- Pond drying;
- Water quality;
- Shade;
- Presence of water-fowl;
- Presence of fish;
- Number of linked ponds;
- Terrestrial habitat; and,
- Macrophyte coverage.

2.20 A score was assigned according to the most appropriate criteria level set within each attribute and a total score calculated of between 0 and 1. Suitability was then determined according to the following scale shown in Table 2.

**Table 2: HSI Score and Suitability**

HSI score	Pond Suitability
<0.5	Poor
0.5 - 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Reptiles

- 2.21 The extended Phase 1 Habitat Survey identified that the parts of the Site formed suitable habitat for reptiles and a recommendation was made for a specific reptile survey to be undertaken. This was subsequently commissioned and undertaken during August and September 2014.
- 2.22 The detailed methodology for the survey is provided in the separate Reptile Survey Report, but in summary, the survey involved placing artificial refugia (0.5 x 0.5m squares of roofing felt) in appropriate habitat locations. A series of seven checks of the refugia were then undertaken (when weather conditions were appropriate), to search for reptiles either basking on top of the refugia or sheltering underneath. The disturbed ground and general paraphernalia in the western extent of the Site (TNs 4, 5, 6 & 7) contained many existing artificial refugia so the survey included searches for reptiles within this area.

**3.0 RESULTS****Desk Study**

- 3.1 Please refer to Figure 1 for the location of some of the following sites in relation to the study area.

**Statutory Designations**

- 3.2 The Site does not fall within the designation boundary of any site of international, national or regionally important nature conservation importance. The following sites of International importance are present within 10km of the site boundary:
- Deben Estuary Ramsar & SPA, (which extends to 981ha) is approximately 340m to the south of the site;
  - Sandlings SPA (which extends to 3,405ha) designation boundary is approximately 4.2km to the east; and
  - Stour and Orwell Eustaries Ramsar & SPA., (which extends to 3672ha) is approximately 9.9km to the south-southwest.
- 3.3 In addition to the Ramsar & SPA designations, Deben Estuary is also a SSSI.
- "The Deben Estuary is important for its populations of overwintering waders and wildfowl and also for its extensive and diverse saltmarsh communities. Several estuarine plants and invertebrates with a nationally restricted distribution are also present"*<sup>20</sup>
- 3.4 The Site falls within the Impact Risk Zone for the Deben Estuary SSSI. At this distance from the SSSI all projects other than householder applications are considered to have the potential to have an adverse impact on the SSSI and consequently Natural England would expect the local planning authority to consult them regarding all planning applications at this location.
- 3.5 The next nearest SSSIs to the site are:
- Sinks Valley SSSI (approximately 2.3km to the southwest)

<sup>20</sup> Natural England. (1991). *Deben Estuary SSSI Citation*. [online]. Available at: [http://www.sssi.naturalengland.org.uk/citation/citation\\_photo/1006262.pdf](http://www.sssi.naturalengland.org.uk/citation/citation_photo/1006262.pdf) [Accessed 04/11/2015].

*"Sinks Valley is one of the few remaining valleys within the Suffolk Coast and Heaths Natural Area that are almost entirely occupied with semi-natural vegetation. It contains a full sequence of habitats from open water, fringing swamp, spring-fed fen and wet grassland, and wet alder woodland, to dry acid grassland, heathland and oak woodland rising up the valley sides. It is this diversity of habitats, their barely interrupted sequence and their clear relation to the landform that makes Sinks Valley special"*<sup>21</sup>.

- Riverside House Meadow SSSI (approximately 2.7km to the northwest)

*"Riverside House Meadow is a floristically rich unimproved meadow. The number of such traditionally managed herb-rich meadows has been greatly reduced in recent decades and remain under threat from changes in agricultural practice. The site supports a typically high number of grasses and herbs"*<sup>22</sup>.

- 3.6 There are no Local Nature Reserves (LNR) located within 2km of the study area.

### Non-Statutory Designations

- 3.7 Within Suffolk, sites with a non-statutory biodiversity designation are referred to as County Wildlife Sites (CWS). These represent Local Sites as referred to within National Planning Policy Framework (NPPF)<sup>23</sup> and Government Circular 06/2005<sup>24</sup>. There are several CWS within 1km of the study site. These are listed in Table 3 below. It is not clear from many of the citations for these sites when they were written and consequently the sites may have subsequently changed. The most recent date given is 1993 for Seckford Hall Camp Site. These sites, and others beyond 1km from the site, are shown on Figure 1.

<sup>21</sup> Natural England. (1996). *Sinks Valley, Kesgrave SSSI Citation*. [online]. Available at: [http://www.sssi.naturalengland.org.uk/citation/citation\\_photo/2000029.pdf](http://www.sssi.naturalengland.org.uk/citation/citation_photo/2000029.pdf) [Accessed 04/11/2015].

<sup>22</sup> Natural England (1993). *Riverside House Meadow, Hasketon SSSI Citation*. [online]. Available at: [http://www.sssi.naturalengland.org.uk/citation/citation\\_photo/1006842.pdf](http://www.sssi.naturalengland.org.uk/citation/citation_photo/1006842.pdf) [Accessed 04/11/2015].

<sup>23</sup> Department for Communities and Local Government. (2012). *National Planning Policy Framework*. [Online]. London: Department for Communities and Local Government. Available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/6077/2116950.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf) [Accessed 04/11/2015]

<sup>24</sup> ODPM. (2005). *Government Circular: Biodiversity and Geological Conservation*. London: ODPM & DEFRA. Available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/7692/147570.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf) [Accessed 04/11/2015]

Table 3: County Wildlife Sites within 1km of the Site

Site Ref.	Site Name	Approx. Distance From Study Site	Site Summary
188	Seckford Hall Camp Site	230m to the northwest	Wetland flora & rabbit grazed sandy grassland with scattered oak and hawthorn. Diverse acid grassland community which includes two Nationally Scarce species; mossy stonecrop and suffocated clover. Also supports a large population of the rare shepherd's cress.
182	Martlesham Creek Reed	305m to the south	Reedbed habitat with associated scrub which provides breeding habitat for several species of bird, including; reed and sedge warbler, and reed bunting. Also of value for passage waders such as greenshank.
	Sluice Wood	610m to the south	Mixed broadleaved woodland with plants such as wood spurge and pignut indicating a long history as a wooded site.
	Kyson Meadows	1 km to the east	Cattle –grazed unimproved pastures. Provide winter feeding and sheltering habitat for many bird species. Associated dykes provide breeding habitat for other birds. Grassland supports many plant species indicative of wet grassland.
222	Porter's Wood	540m to the northeast	Woodland Trust owned site. Formed by dry oak woodland on higher ground and wet alder carr woodland on waterlogged peat soils on lower ground.
197	Woodbridge Wet Meadow	765m to the northeast	Diverse wetland vegetation associated with springs; this includes large populations of orchids. Drier parts of site support vegetation which is typical of the light soils within the local area.
206	Woodbridge Old Cemetery	960m to the northeast	Free-draining nutrient poor soils, which support areas of lichen/bryophyte heath and other areas where plants indicative of more mesotrophic conditions occur. Plant assemblage includes notable plants such as the Nationally Scarce clustered clover.

### Species Records

- 3.8 The data search with Suffolk Biological Records Centre (SBRC) returned a large number of protected and notable species records from the study area. Due to the large number, these are reported in summary format graphically via Figure 2 for conciseness and clarity.
- 3.9 The following records were returned from the data trawl:

#### Mammals

##### Bats

- Brown long-eared bat *Plecotus auritus*



Recorded in 1994 and more recently in 2012 (an injured bat in a garden) approximately 1km to the southwest of the site. A breeding colony and was recorded in 2009 approximately 1.3km to the northwest of the site.

- Noctule *Nyctalus noctula*.

Single record dated 1999 from a location approximately 950m to the south southeast of the site.

- Pipistrelle bats *Pipistrellus spp.*

Various records for were received from SBRC covering a date range of 1993-2010, approximately 580m northeast of the site in the adjacent residential area, and at a similar distance south of the site.

Other mammals

- Water vole *Arvicola terrestris*.

Various records associated with Martlesham Creek and its adjoining habitats such as marshes, ditches and the River Fynn some 300-500m south of the site.

- West European hedgehog *Erinaceus europaeus*.

Various records spanning a date range of 1994 to 2012 from locations mainly to the north of the site.

### Birds

- 3.10 A large number of protected and notable bird species records were provided by SBRC for the study area. A large concentration of these relate to the Martlesham Creek area to the south and southeast of the site. These are shown on Figure 2.
- 3.11 There was a single record which located the species within the site boundary; this was for common kestrel *Falco tinnunculus*.

### Reptiles & Amphibians

- Great crested newt.

There were no records for this species within the 1km search area; the nearest records were dated 2008 and 2011 from Portal Woods, Martlesham which is located approximately 2.1km to the southwest of the site. These appear to indicate a small population with a single male and an egg recorded in 2011 and two females in 2008.

- Slow-worm *Anguis fragilis*.

A record dated 2012 located approximately 400m east of the site on the adjacent railway; a record dated 2005 from the Seckford Hall Camp Site County Wildlife Site (approximately 450m northwest of the site); and various records from Martlesham Common which is located approximately 1.75km from the site.

- Common lizard *Zootoca vivipara*.

A record located approximately 550m south of the site dated 2007 at Martlesham Creek; and a cluster of records dated 2005-10, from Martlesham Common, approximately 1.75km from the site.

- Grass snake *Natrix natrix*.

There were no records for this species within the 1km search area; the nearest records were dated 2008 from Portal Woods, Martlesham which is approximately 2km from the site.

- Common toad *Bufo bufo*.

Various records in the study area; for example the adjacent residential area to the east and Martlesham Creek to the south.

### Field Survey – Habitats

Plant nomenclature follows Stace (2010)<sup>25</sup>. Full Target Notes and associated photographs are provided in Appendix A. The location of habitats and Target Notes are shown on Figure 3.

### Overview

- 3.12 The Site is formed by four fields of species-poor neutral grassland which has most likely developed naturally following abandonment of cultivation of the land. In a few isolated areas, grazing by rabbits *Oryctolagus cuniculus* and the sandy nature of the soils have resulted in a sward of a different composition which is largely formed by ephemeral/short perennial vegetation with mosses forming a significant component in one of these areas. There is a single internal hedgerow which is species-poor and which separates two fields in the northern half of the Site. The only other hedgerows are along the northern boundary of the Site and part of the east boundary. Two mature trees are present within the site away from the external boundaries. The northern part of the Site sits on a higher elevation with a bank separating this from the southern part. There is no standing water habitat present but a small ditch with a shallow flow partially bisects the southeast corner of the Site. In the southwest corner there are various small buildings/sheds and areas of disturbed ground.

### Grassland

- 3.13 Species-poor neutral grassland represents the main habitat within the Site and occupies the vast majority of the area. In the southern half of the Site (TN15) this is formed by a sward dominated by false oat-grass *Arrhenatherum elatius*, cock's-foot *Dactylis glomerata* and Yorkshire-fog *Holcus lanatus*. With the exception of several ruderal species (creeping thistle *Cirsium arvense*, field horsetail *Equisetum arvense* and rosebay willowherb *Chamerion angustifolium* common nettle *Urtica dioica*, and common ragwort *Senecio jacobaea*) the sward contains few forbs. The species composition and structure of the sward is indicative of grassland which has developed via natural regeneration following abandonment of cultivation of the land.
- 3.14 The majority of the grassland in the northern half of the Site is of a similar composition and structure to that in the southern half (e.g. TN15). The field to the west (TN18) is formed by a sward dominated by Yorkshire-fog with some common couch *Elytrigia repens*, common mallow *Malva sylvestris*, spear thistle *Cirsium vulgare*, common chickweed *Stellaria media*, and locally abundant annual nettle *Urtica urens*, common ragwort and wild carrot *Daucus carota*. The adjacent field, to the east, (TN17) is also of a similar species composition and structure but with cock's-foot more abundant.

<sup>25</sup> Stace, C.A. (2010). *New Flora of the British Isles. Third Edition*. Cambridge: Cambridge University Press.

**Ephemeral/short perennial vegetation**

- 3.15 A combination of sandy soils and rabbit grazing has resulted in ephemeral/short perennial vegetation in two areas of the Site.
- 3.16 One of these areas (TN19) along the north boundary of the Site (TN19) has a sward which contains locally abundant to dominant bryophytes with whitish feather-moss *Brachythecium albicans*, neat feather-moss *Pseudoscleropodium purum* and springy turf-moss *Rhytidiadelphus squarrosus* key components of this assemblage. Within the vascular plant component of the sward common cudweed *Filago vulgaris* and smooth hawk's-beard *Crepis capillaris*, common stork's-bill *Erodium cicutarium*, common ragwort and yarrow *Achillea millefolium* are abundant.
- 3.17 A second area (TN15a) is located adjacent to the small bank separating the northern and southern elevations of the Site; mainly along the southern edge. Here the vegetation is very similar in composition to TN19 (but with bryophytes less evident) with frequent to abundant common cudweed, smooth hawk's-beard, ribwort plantain *Achillea millefolium* and yarrow and a range of other species at lower abundance, species such as; dove's-foot crane's-bill *Geranium molle*, common stork's-bill and bugloss *Anchusa arvensis*.

**Hedgerows**

- 3.18 There are five hedgerows associated with the Site. These are shown on Figure 3 and summarised in Table 4 below. More detailed information for individual hedges are provided in the Appendix B.

**Table 4: Summary of the Extent of the Hedgerows and their Ecological Value**

Feature	Hedge No				
	1	2	3	4	5
Length (m)	306	161	146	44	166
No, standards/50m	1	0	0	0	0.60
% Gaps	8	20	1.4	0	10.8
% Ditch	0	0	0	0	0
% bank/wall	100	0	146	0	0
Connections: a) Other hedges b) Woodland c) Ponds	a)	a)	a)	a)	None
No. Young trees/100m	0.32	2.48	0	0	<1
HEGS grade	2+	3	-3	3	3
Important Hedgerow	No	No	No	No	No

- 3.19 None of the hedgerows are particularly species-rich with elm *Ulmus agg.* and hawthorn *Crataegus monogyna* the most abundant species, the exception being Hedgerow 5 which contains a total of eight woody species with hazel *Corylus avellana* the most abundant species. None of the hedgerows meet the criteria to be considered as Important Hedgerows. When

evaluated using the HEGS system most were only of moderate ecological value with just Hedgerow H1 of moderately high value.

### Mature Trees

- 3.20 As outlined in the overview, mature trees do not feature significantly within the Site. Table 5 provides details of those present. None of the trees were considered to be of veteran status. Three were considered to have low (e.g. Category 2b) potential to support roosting bats and three were considered to have no potential.

**Table 5: Summary of Mature Trees**

Tree Ref.	Species	Description/ Comment
T1	Pedunculate Oak <i>Quercus robur</i>	An old pollard with approximately 6 large stems arising from the old cutting point. Densely clad by ivy <i>Hedera helix</i> ; right from the base to nearly the top of the tree. No apparent decay. Category 2b bat roost potential.
T2	Pedunculate Oak <i>Quercus robur</i>	Large tree. A small amount of deadwood in the canopy but otherwise healthy and no evidence of holes or cavities. No potential for roosting bats. Category 3 bat roost potential.
T3	Pedunculate Oak <i>Quercus robur</i>	A lapsed pollard. The crown is healthy but there is considerable decay at the top of the bolting and at the base of the stems. Category 3 bat roost potential. Potential suitable nesting conditions for birds, particularly owls.
T4	Elm <i>Ulmus</i> sp.	Dead and completely smothered by ivy. Category 2b bat roost potential.
T5	Pedunculate Oak <i>Quercus robur</i>	A lapsed pollard with multiple stems arising from the top of the bolting. The crown appears healthy but heavily clad by ivy. The ivy stems had been cut at ground level relatively recently as the leaves were just beginning to wither. Holes and cavities could be hidden by the ivy but very cluttered. Category 2b bat roost potential.
T6	Pedunculate Oak <i>Quercus robur</i>	Semi-mature tree. Healthy with no decay, holes, cavities etc. Category 3 bat roost potential.

### Scrub

- 3.21 There is little in the way of scrub habitat present within the Site. The boundary with adjacent properties on the west side (TN3) is formed by mature shrubs. Bramble *Rubus fruticosus* agg. occurs frequently in various places, often associated with tall ruderal herbs; examples of such areas are TN4 and TN8.

### Tall Ruderal Herbs

- 3.22 Tall ruderal herbs feature in several locations around the Site. A bank (TN8) separates most of the northern and southern parts and is vegetated with scattered scrub and tall ruderal herbs with bracken *Pteridium aquilinum* and common nettle locally abundant. A second bank (TN20) is present towards the east side of the Site and also supports tall ruderal herbs with common nettle and great willowherb *Epilobium hirsutum* particularly abundant towards the base.

**Wetland**

- 3.23 The only wetland habitat present within the Site is a drainage ditch in the southeast area (TN10). A very shallow depth of water with a gentle flow passes through a channel with a narrow profile which is largely dominated by great willowherb with locally frequent to abundant common nettle on the drier bank tops. The common mosses rough-stalked feather-moss *Brachythecium rutabulum* and common feather-moss *Kindbergia praelonga* are abundant in the shaded conditions. The associated grassland on the banks and edges is tussocky and formed by coarse grasses such as cock's-foot and false oat-grass *Arrhenatherum elatius*; cleavers *Galium aparine* are frequent throughout. At the southern end the ditch opens out to a wider area.
- 3.24 A few holes were noted in the ditch banks but water depth was shallow and there were no field signs for water vole.

**Structures**

- 3.25 The southwest corner of the Site contains several buildings (TN6 & TN7) which include old shipping containers and an old shed of breeze block and asbestos roof construction with half the roof missing. None of these buildings were considered as suitable to support roosting bats.
- 3.26 The only other buildings present are an old tin shed and newer small structures (TN11) in the southeast area which house electrical switch gear, with labels and pipes suggesting that this was part of a former irrigation system. None of these buildings were considered to be suitable for roosting bats.

**Field Survey – Fauna****Mammals**Bats

- 3.27 As highlighted in the preceding paragraphs, none of the buildings within the Site contained suitable features to support roosting bats. Three mature trees were considered to have low (e.g. Category 2b) potential to support roosting bats and three were considered to have no potential.

Badger

- 3.28 No signs to indicate the presence of badger within, or immediately adjacent to, the Site were noted during the survey.

**Birds**

- 3.29 Few birds were noted during the survey and these were generally urban edge species: blackbird *Turdus merula*, robin *Erithacus rubecula*, wren *Troglodytes troglodytes*, blue tit *Cyanistes caeruleus*, great tit *Parus major* and chaffinch *Fringilla coelebs*.

### Amphibians

- 3.30 The Site does not contain any standing water habitat and the single ditch contains flowing water with a shallow depth; consequently, there is no suitable breeding habitat for amphibians within the Site.
- 3.31 The data trawl identified records for great crested newt from Portal Woods, Martlesham approximately 2.1km to the southwest of the site. This appears to be a very small population which was recorded in 2008 and 2011. This distance is too far away for there to be any likelihood of newts from this population being present within the Site; in addition, this location is to the west of the A12 which is considered to represent a significant barrier to dispersal.
- 3.32 The data search identified several potential standing water sites within 500m of the Site (these are shown on Figure 4). As discussed above, the A12 is considered to be a significant barrier to amphibian dispersal from those located to north and west of this major road. To the southeast of the Site the data trawl identified two areas of standing water immediately adjacent to Martlesham Creek (P1 & P2). These were found to be areas of reedbed with small amounts of open water. Whilst the resulting HSI scores (0.77 for both waterbodies) indicated that these had a 'good' suitability to support great crested newt, their close association with the creek was considered to be likely to result in brackish conditions which would make them potentially unsuitable for great crested newt. That aside, these waterbodies were at least 320m from the Site and the landscape in between these locations is formed by rough grassland, hedgerows, domestic gardens and the sewage treatment works immediately adjacent to the north. There are therefore extensive areas of suitable terrestrial habitat in the immediate vicinity of these waterbodies. Considering the extent of this adjacent suitable habitat, and the distance from the Site, it is considered that if great crested newt were present within P1 or P2 they would they would be very unlikely to utilise the habitats within the site.
- 3.33 Ordnance Survey mapping showed a large area of standing water immediately south of Sluice Farm (P3). Investigation on the ground during the survey identified that this no longer existed.
- 3.34 Two additional waterbodies located to the west were P4, which when examined on the ground proved to be part of a flowing stream and therefore unsuitable for great crested newt, and P5 which was a concrete drainage channel associated with the adjacent A12. This did not appear to support standing water except possibly at its most southerly extent but this was shallow and temporary and considered to be unsuitable for breeding great crested newt.

### Reptiles

- 3.35 There was no evidence of any reptiles during the initial Phase I survey and most of the habitats present generally lacked the structural diversity required by most reptiles. Exceptions to this were:
- Land which formed the embankment for Top Street and Ipswich Road formed by a grassland/scrubland habitat mosaic which included the hedgerow which forms the north boundary of the site;
  - The south facing bank separating the northern and southern parts of the site;
  - The disturbed area situated within the southwest corner of the site which had a high structural diversity and large amounts of general debris which provided potential refuges for reptiles;

- Areas of bare ground and disused rabbit holes arising from the large rabbit population present around the site were considered to also provide potentially suitable habitat; the northern boundary of the site and the central bank being areas of particular note for these features; and
  - The railway line immediately adjacent to the southern boundary of the site was also considered to provide good habitat for reptiles with the warmer south side of the track providing the most suitable conditions.
- 3.36 A strategic presence / absence reptile survey undertaken between the 21<sup>st</sup> August and the 30<sup>th</sup> of September 2014 targeting the above areas of suitable habitat identified the presence of a population of common lizard within the site. In accordance with current site survey assessment guidance (Froglife, 1999)<sup>26</sup> the population was found to be 'good' with a peak count of 12 adults recorded.
- 3.37 Individuals were mainly recorded along the site's northern boundary and the south facing bank in the centre of the site, but also in small areas of suitable habitat associated with the boundary fence abutting the residential area of Duke's Park within the site's eastern extent. See separate Reptile Survey Report for full details of the survey.

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<sup>26</sup> Froglife (1999) *Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation*. Froglife Advice Sheet 10. Froglife, Halesworth

## 4.0 DISCUSSION AND RECOMMENDATIONS

### Evaluation of Habitats and Species

- 4.1 For the purpose of determining the ecological value of habitats and individual species the following assessment has been guided by the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the United Kingdom<sup>27</sup>. The guidelines recommend that the ecological value of habitats and species should be determined on a geographic context, e.g. National, County, etc.
- 4.2 The degree to which habitats and receive consideration within the planning system relies on a number of mechanisms, including:
- Inclusion within a specific policy, for example veteran trees, ancient woodland and linear habitats within the National Planning Policy Framework (NPPF);
  - A statutory or non-statutory site designation;
  - Habitats and species considered as habitats and species of principal importance for the conservation of biodiversity as listed within Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act (2006); and
  - Habitats and species identified as being a Priority Habitat or Priority Species within the local Biodiversity Action Plan (Suffolk BAP)

### National Policy

#### National Planning Policy Framework (NPPF)

- 4.3 The National Planning Policy Framework (NPPF) was published on 27<sup>th</sup> March 2012. It replaced all previous Planning Policy Statements (PPS) along with other planning guidance. Embedded within the NPPF is the premise of 'presumption in favour of sustainable development' which is laid out in twelve central land-use planning principles which underpin the production of development plans and decision taking.
- 4.4 Within this strand of sustainable development the NPPF aims to "...seek positive improvements in the quality of the built, natural and historic environment.." which, amongst others, includes, "...moving from a net loss of bio-diversity to achieving net gains for nature.."
- 4.5 Within the NPPF there are clear objectives for conserving and enhancing the natural environment:

*"The planning system should contribute to and enhance the natural and local environment by:*

- *protecting and enhancing valued landscapes, geological conservation interests and soils;*
- *recognising the wider benefits of ecosystem services;*

<sup>27</sup> Institute of Ecology and Environmental Management. (2006). *Guidelines for Ecological Impact Assessment for the United Kingdom*. [Online]. Available from: [http://www.cieem.net/data/files/Resource\\_Library/Technical\\_Guidance\\_Series/EcIA\\_Guidelines/TGSEcIA-EcIA\\_Guidelines-Terrestrial\\_Freshwater\\_Coastal.pdf](http://www.cieem.net/data/files/Resource_Library/Technical_Guidance_Series/EcIA_Guidelines/TGSEcIA-EcIA_Guidelines-Terrestrial_Freshwater_Coastal.pdf) [Accessed 04/11/2015]



- *minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and*
- *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate".*

## Relevant Local Planning Policies

### Suffolk Coastal District Local Plan – Core Strategy and Development Management Policies<sup>28</sup>

- 4.6 The Site is located within the Suffolk Coastal District. Suffolk Coastal District Council formally adopted the Core Strategy and Development Management Policies document on 5<sup>th</sup> July 2013, with an expanded title of 'Suffolk Coastal District Local Plan – Core Strategy and Development Management Policies'. This document is now used in the determination of planning applications and sets out the vision for the Suffolk Coastal District up to 2027.<sup>29</sup>
- 4.7 Whilst this newly adopted 'Local Plan' continues to have regard to a series of 'saved policies' from the previously adopted Suffolk Coastal Local Plan, policies concerning biodiversity have now been superseded by various policies within the new plan. In this respect, Objective 11, 'Protecting & Enhancing The Physical Environment' represents the key part of the 'Local Plan'; with two targets:

- *"Improve biodiversity, geodiversity, landscape and townscape quality throughout the district*
- *No loss in number and area of ecological and geological designations*

The key Core Strategy & Development Management Policies that are expected to be instrumental in achievement of these targets are:

- Strategic Policy SP14 – Biodiversity and Geodiversity
- Development Management Policy DM27 – Biodiversity and Geodiversity

#### Strategic Policy SP14 – Biodiversity and Geodiversity

*"Biodiversity and geodiversity will be protected and enhanced using a framework based on a network of:*

- *Designated sites;*

<sup>28</sup> Suffolk Coastal District Council. (2013). *Suffolk Coastal District Local Plan – Core Strategy & Development Management Policies. Development Plan Document – July 2013*. [online]. Available at: <http://www.suffolkcoastal.gov.uk/assets/Documents/LDF/SuffolkCoastalDistrictLocalPlanJuly2013.pdf> [Accessed: 04/11/2015].

<sup>29</sup> Suffolk Coastal District Council. (2014). *Planning Services – Core Strategy & Development Management Policies*. [webpage]. Available at: <http://www.suffolkcoastal.gov.uk/yourdistrict/planning/review/corestrategy/> [Accessed: 04/11/2015].

- *Wildlife corridors and links;*
- *The rivers, estuaries and coast;*
- *Identified habitats and geodiversity features;*
- *Landscape character areas; and*
- *Protected species.*

*Sites of European importance, which include Special Areas of Conservation and Special Protection Areas are statutorily protected under the Conservation of Habitats and Species Regulations 2012 (based on EU directives), and wetlands of global importance (Ramsar sites) are protected by Government policy to apply the same level of protection as to European sites.*

*More generally, the policy approach to development on sites designated for their biodiversity or geodiversity interest is set out in Policy DM27.*

*The Suffolk Biodiversity Action Plan and Suffolk Local Geodiversity Action Plan will be implemented. The Strategy will also be to contribute to county targets through the restoration, creation and on-going management of new priority habitats as identified in those documents."*

#### Development Management Policy DM27 –Biodiversity and Geodiversity

*"All development proposals should:*

- (a) protect the biodiversity and geodiversity value of land and buildings and minimise fragmentation of habitats;*
- (b) maximise opportunities for restoration, enhancement and connection of natural habitats; and*
- (c) incorporate beneficial biodiversity conservation features where appropriate.*

*Development proposals that would cause a direct or indirect adverse effect (alone or combined with other plans or projects) to the integrity of internationally and nationally designated environmental sites or other designated areas, priority habitats or protected/priority species will not be permitted unless:*

- (i) prevention, mitigation and, where appropriate, compensation measures are provided such that net impacts are reduced to a level below which the impacts no longer outweigh the benefits of the development\*; or*
- (ii) with regard to internationally designated sites that the exceptional requirements of Reg. 62 of the Conservation of Habitats and Species Regulations 2010 (as amended) relating to the absence of alternative solutions and Imperative Reasons of Overriding Public Interest have been met.*

*Improved site management and increased public access to sites will be encouraged where appropriate.*

*Footnote: \*If the result of the Appropriate Assessment is that part of the Core Strategy cannot be delivered without adverse impacts on a European site which cannot be appropriately mitigated then planning permission will only be granted for a level and location of development for which it can be concluded that there will be no adverse impact on the integrity of the site even if this level is below that indicated in the Core Strategy...*

*...5.72 Plans or projects which may have a likely significant effect on a European site will require appropriate assessment under Reg. 61 of the Conservation of Habitats and Species Regulations 2010 (as amended). Accordingly, local authorities can only consent plans or projects where it can be ascertained that they will have no adverse effect on the integrity of a European site. In exceptional circumstances, where there are no alternative solutions, a plan or project may meet the tests of Imperative Reasons of Overriding Public Interest (IRO PI), which then requires demonstration that appropriate compensation will be provided to ensure that the integrity of the Natura 2000 network is not compromised. Given the rigour of these tests, the presumption is that plans or projects that could adversely affect Natura 2000 sites will not be approved. In practice, schemes which qualify for IRO PI are extremely rare and are very unlikely to fall under the Council's remit for decision making.*

*5.73 In order to protect nature conservation, it will also be important to protect habitats outside designated sites and to protect particular species, such as those which are rare or protected. Suffolk Biodiversity Action Plan priority species and habitats as defined by Suffolk Biodiversity Partnership, and other species protected by law will be protected from harmful development. Where there is reason to suspect the presence of nature conservation interests, applications for development should be accompanied by a survey and assessment of their value, in accordance with local biodiversity validation requirements. If present, the proposal must be sensitive to, and make provision for, their needs..."*

### **Suffolk Biodiversity Action Plan (SBAP)**

- 4.8 Although the UK BAP has now been replaced by Biodiversity 2020<sup>30</sup> Framework, and counties across the country are likely to take differing approaches with regard to delivery of biodiversity within their areas, Local Biodiversity Action Plans remain a key element for securing the requirements of the NPPF. This is the case within Suffolk, where the priority species and habitats within the Suffolk Biodiversity Action plan are considered to be a material consideration within the planning process. The SBAP contains 23 'priority habitats' and 262 'priority species'<sup>31</sup>.

<sup>30</sup> DEFRA. (2011). *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*. [online]. London: DEFRA. Available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf) [Accessed 04/11/2015].

<sup>31</sup> Suffolk Biodiversity Partnership. (2014). *Suffolk Priority Species and Habitats (Suffolk Biodiversity Action Plan) January 2014*. [online]. Available at: <http://www.suffolkbiodiversity.org/content/suffolkbiodiversity.org/PDFs/action-plans/Suffolk%20BAP%20list%20January%202014.pdf> [Accessed 04/11/2015].

Priority Habitats

- 4.9 Hedgerows are the only listed Priority Habitat which is present within the site. The objectives for this priority habitat are<sup>32</sup>:

*"1. Obtain an up to date picture of the status and extent of ancient and/or species rich hedgerows in the county.*

*2. Ensure that most existing field boundaries are hedged, by encouraging planting along currently un-hedged boundaries (where this would have been a typical landscape feature), retaining hedgerow trees and the planting up of gaps.*

*3. Planting schemes should take account of the historical and cultural context, that is, local traditions and structures of boundary features".*

- 4.10 Within the context of the Site, retention of existing hedgerows and any hedgerow trees they contain would be important to meet Objective 2. Within the overall landscaping design there may be opportunities to create new hedgerows; the species composition of any new hedges should take account of the species composition within the immediate local area.

Priority Species

- 4.11 On the basis of the results of the desktop study and field survey the following priority species are likely to be of relevance as they have either been recorded within the local area and/or the site contains suitable habitat to support them:

- Common lizard      *Zootoca vivipara*
- Grass snake      *Natrix natrix*
- Slow-worm      *Anguis fragilis*
- Great Crested Newt *Triturus cristatus*
- Dunnock      *Prunella modularis*
- Yellowhammer      *Emberiza citronella*
- Brown Hare      *Lepus europaeus*
- Hedgehog      *Erinaceus europaeus*
- Bats
  - Brown Long-eared      *Plecotus auritus*
  - Noctule      *Nyctalus noctula*
  - Pipistrelle sp.      *Pipistrellus sp.*

<sup>32</sup> Suffolk Biodiversity Partnership. (2004). *Suffolk Biodiversity Action Plan – Ancient and/or Species-rich Hedgerows Habitat Action Plan*. [online]. Available at: <http://www.suffolkbiodiversity.org/content/suffolkbiodiversity.org/PDFs/action-plans/hedgerows.pdf> [Accessed 04/11/2015].

## Statutory Designated Sites

### International Sites

- 4.12 The designation boundary of Deben Estuary RAMSAR & SPA is approximately 340m to the south of the Site and the Sandlings SPA designation boundary is approximately 4.2km to the east.
- 4.13 Gladman have commissioned Ecology Solutions to undertake an assessment of the likely significant effects of the proposed development on the Deben Estuary Ramsar/SPA. This has concluded that the proposals, alone and in combination with other plans and projects, would not result in a significant adverse effect on the Deben Estuary Ramsar/SPA. The Ecology Solutions document should be referred to for full details of this assessment<sup>33</sup>.

### National Sites

- 4.14 Deben Estuary is the only SSSI within 2km of the Site. Potential impacts on this site have been considered within the aforementioned Ecology Solutions document which considered that the proposed mitigation and avoidance measures for the Ramasar/SPA would be relevant to the interest features of the SSSI. Consequently, it was considered that no additional mitigation was necessary for the SSSI.

## Non-Statutory Designated Sites

- 4.15 None of the County Wildlife Sites are immediately adjacent to the Site so no direct impact on these sites would be expected. There is however a potential impact which might arise from increased public access to the sites. Many of these sites appear to have existing open access or have Public Rights of Way either passing through, or immediately adjacent to them. Table 6 considers the existing access provisions.

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<sup>33</sup> Ecology Solutions. (2015). *Land off Duke's Park, Woodbridge, Suffolk – Information to enable a Habitats Regulations Assessment of the impacts on the Deben Estuary Special Protection Area and Ramsar site pursuant to Regulation 61 of The Conservation of Habitats and Species Regulations 2010 (as amended) – August 2015 Ref: 6512.IHRA.dv1.*

**Table 6: Current Public Access to Nearby County Wildlife Sites**

Site Ref.	Site Name	Approx. Distance From Study Site	Current Public Access
188	Seckford Hall Camp Site	230m to the northwest	Public footpath running north/south in the southwest part of the site
182	Martlesham Creek Reed	305m to the south	Public footpath on the west boundary.
	Sluice Wood	610m to the south	Public footpath (Fynn Valley Walk) passes (east/west) through the northern part.
	Kyson Meadows	1 km to the east	Public footpath on the west boundary and also on the east boundary (Fynn Valley Walk)
222	Porter's Wood	540m to the northeast	Woodland Trust and designated as open access land.
197	Woodbridge Wet Meadow	765m to the northeast	No formal public access
206	Woodbridge Old Cemetery	960m to the northeast	Cemetery so an open access site.

- 4.16 Increased visitor pressure to non-statutory sites often arises when they are in very close proximity to residential development and this is generally for the purpose of exercising dogs. With perhaps the exception of Seckford Hall Camp Site and Martlesham Creek, none of the sites are considered close enough to be used for this purpose. 'Seckford Hall Camp Site' is separated from the Site by the busy A12 and therefore is considered unlikely to be an attractive choice of walk. Martlesham Creek is a wet habitat and therefore incursions into the site are considered unlikely.
- 4.17 The overall development design will include a Public Open Space provision and it is this that is considered likely to be used for immediate recreational use by residents of the proposed new development. Consequently, it is considered unlikely that there would be any indirect impact on the nearby County Wildlife Sites.

### **Grassland**

- 4.18 The species-poor neutral grassland forming the majority of the Site is a common and widespread habitat within the County and across the UK. This habitat is therefore considered to be of negligible value.

### **Ephemeral/short perennial vegetation.**

- 4.19 Within the immediate local area beyond the Site boundary sandy soils which have been grazed short by rabbits support vegetation of a similar species-composition to that which is present

within the Site and therefore this would seem to be a locally common habitat type. Consequently this is considered to be of Local value. (see also Notable plants below).

### **Hedgerows**

- 4.20 Hedgerows dominated by native species are classified as a Habitat of Principal Importance under Section 41 of the NERC Act 2006. The Suffolk BAP also has a specific Hedgerow Habitat Action Plan. Despite this status there is a significant hedgerow resource across the UK and therefore examples of the HPI would not be considered to be of National or County value but of Local or District value. The assessment of the hedges within the site has found them to be mainly only of moderate value. Consequently, the hedgerow resource within the site is considered to be of Local value.
- 4.21 The Framework Plan indicates that with the exception of hedge 3, which is considered to be the hedgerow with the least ecological value and a minor loss for an access points within H1, the hedgerows will be retained.
- 4.22 These losses will be compensated for via specific management to enhance the ecological value of the retained hedges and the creation of new hedges forming part of the development green infrastructure and landscaping strategy.

### **Mature Trees**

- 4.23 None of the mature trees within the Site are of veteran status but they do contribute to the structural diversity of the external boundaries of the Site and are therefore considered to be of Site value.

### **Scrub**

- 4.24 Scrub is a widespread and ubiquitous habitat and therefore is considered to be of negligible value within the context of this particular site.

### **Tall Ruderal Herbs**

- 4.25 As for scrub, this is a widespread and ubiquitous habitat and therefore is considered to be of negligible value within the context of this particular site.

### **Wetland Habitat**

- 4.26 The small drain forms the only wetland habitat within the Site and is dominated by tall ruderal herbs and provides no connectivity to other wetland features or any strong connectivity to other habitats within the Site. It is therefore considered to be of negligible value.

### **Species**

#### **Mammals**

##### Bats

- 4.27 None of the structures within the site contained features which would be suitable to support roosting bats.

- 4.28 Based on current best practice guidance the nature of the proposed development, the habitats within the Site, and its location in relation to features in the wider landscape, are such that specific surveys for bats were considered to be unnecessary and the Site would be considered to be of low/medium value for bats. Therefore the Site was considered to be of no greater than Local value for bats.
- 4.29 Three hedgerow trees were considered to have low potential to support roosting bats. Based on the Framework Plan, these will be retained and therefore further survey work is not required. Should this situation change, further assessment of the trees will be undertaken via aerial roped access surveys and/or nocturnal surveys.
- 4.30 The single internal hedgerow (H2) is short and has poor structure and provides no real connectivity at its southern end; consequently this is unlikely to be of value as a foraging and commuting route for bats.
- 4.31 The remainder of the hedgerow resource is located on the outer boundaries of the Site. Any loss of this resource is therefore likely to be minor and just for the purpose of the provision of access points. This is unlikely to therefore create any significant severance of any potential commuting or foraging routes for bats.
- 4.32 The proposed development is therefore considered as likely to have a negligible effect on the local bat population.

#### Badger

- 4.33 Although the survey did not reveal any evidence of the presence of badger within the Site this situation could change at any point in the future. Consequently, it is recommended that should development for the site be granted then a brief update survey should be carried out prior to the commencement of any works to check that badgers have not moved into the site. Based on the current absence of any evidence indicating the use of the Site by the species it is considered to be of negligible value for badgers.

#### Hazel Dormouse

- 4.34 Dormice are present within Suffolk and recent survey efforts have identified five discrete populations generally located to the south of the county and west of the site. The nearest two populations being; Barking Woods approximately 20km to the northwest and Bentley approximately 20km to the southwest.
- 4.35 Whilst the optimum habitat for dormice is ancient semi-natural woodland with long-term hazel coppice management, they can be found in a wide range of other 'non-typical' habitats including hedgerows<sup>34</sup>. Although the Site does not contain any suitable woodland habitat, and the hedges are only moderately species diverse, hedgerow H5 contains an abundance of hazel and therefore might be considered as having the potential to support hazel dormice. This potential has however been investigated as part of the ecological surveys undertaken in association with the

<sup>34</sup> Bright, P., Morris, P., & Mitchell-Jones, T. (2006). *The dormouse conservation handbook – second edition*. [online]. Available at: <http://webarchive.nationalarchives.gov.uk/20151106000001/http://publications.naturalengland.org.uk/publication/80018> [Accessed: 04/11/2015].



proposed East Anglia ONE offshore windfarm. H5 was surveyed for dormice in 2012 and the survey concluded that dormice were not present<sup>35</sup>.

- 4.36 The site is therefore considered to be of negligible value for dormouse.

#### Water Vole

- 4.37 Although there is a population of water vole nearby in the suitable habitats within Martlesham Creek the single ditch within the site was not considered to provide suitable habitat for water vole and had no connectivity with adjacent suitable habitat. No evidence of water vole was noted during the survey. Consequently it is considered that water vole are not present within the site.
- 4.38 The site is therefore considered to be of negligible value for water vole.

#### Hedgehog

- 4.39 No evidence of this Suffolk BAP Priority Species was noted during the survey. The domestic gardens and green infrastructure component of the proposed development will provide additional habitat for this species.
- 4.40 The site is therefore considered to be of negligible value for hedgehog but once the proposed development is completed and the gardens have matured the site is likely to be of Local value for this Species of Principal Importance.

#### Brown Hare

- 4.41 Although not recorded during the survey, the Site does provide suitable habitat for this Species of Principal Importance and Suffolk BAP Priority Species. This habitat will be lost to the development and therefore could potentially have an impact on the local population. However; the wider landscape to the west and south of the Site is agricultural and provides extensive areas of suitable habitat for brown hare. Therefore, loss of habitat within the Site is not considered to be likely to have a significant impact on the local hare population (SBRC provided two records for this species dated 2002 & 2007 from the Martlesham area).
- 4.42 The Site is considered to be of Site value for brown hare.

#### **Birds**

- 4.43 Species poor semi-improved grassland which overwhelmingly dominates the site is considered to provide few opportunities to breeding birds. However, given that the grassland supports some variation in sward height, it is recognised that the grassland field compartments are likely to offer some limited nesting and foraging opportunities for a small number of common and widespread but declining species of principal importance under S41 of the NERC Act 2006 including skylark *Alauda arvensis*. Habitats of greater value to breeding birds are likely to include the boundary hedgerows and patches of scrub, particularly where this occurs at the western extent of the site. Whilst offering suitable foraging and nesting habitat for a number of generalist and typical garden bird species such as blackbird *Turdus merula* and robin *Erithacus rubecula*, these habitats are likely to support a small number of common and widespread species of principal importance

<sup>35</sup> RSK. (2012). *East Anglia ONE Offshore Windfarm – ES Appendix 24.5 – Dormouse Survey Technical Report – August 2012*. RSK (on behalf of East Anglia Offshore Wind Limited).

associated with scrub and woodland edge habitats such as bullfinch *Pyrrhula pyrrhula*, dunnoek *Prunella modularis*, house sparrow *Passer domesticus* and song thrush *Turdus philomelos*. Overall, given the nature of the habitats present and the Site's relative small size, the Site is considered unlikely to be of no more than local level value for its population of breeding birds.

- 4.44 As is considered likely to be the case with breeding birds, the Site is unlikely to be of particular value for over-wintering birds. Whilst the grassland field compartments may offer some limited over-wintering habitat to open field specialists such as skylark, meadow pipit *Anthus pratensis* and possibly starling *Sturnus vulgaris*, any populations which occur within the site are unlikely to be recorded in significant numbers. Similarly, the hedgerows and scrub habitats are likely to offer limited shelter and foraging opportunities to those resident species which are considered to be present on site during the breeding season. The presence of berry bearing shrub species on site which includes hawthorn and holly is likely to provide occasional foraging opportunities for winter thrushes including redwing *Turdus iliacus* and fieldfare *T. pilaris* which are both common and wide ranging species throughout the country.
- 4.45 Given the close proximity of the Deben Estuary SPA / RAMSAR, it is considered possible that the site may offer some limited foraging and loafing opportunities to bird species which visit the SPA / RAMSAR during the winter period. However, given that the field compartments are dominated by coarse grasses, the use of the site by more specialist species which associate with the wetland habitats within the SPA / RAMSAR are likely to be limited to more wide ranging species such as a range of gulls and possibly curlew *Numenius arquata* which are known to occasionally forage on grasslands such as that found on site (Brown and Grice, 2005<sup>36</sup>). The site does not however support habitats which are likely to be regularly visited by species of cited interest of the Deben Estuary SPA / RAMSAR which includes dark bellied brent goose and avocet. As such, the site is not considered to represent supporting habitat of this internationally important site. The overall expected assemblage of the over-wintering birds within the Site is considered to be of no more than local level value.
- 4.46 To comply with legislation, any removal of woody vegetation including hedgerow sections and trees should occur outside of the bird breeding season (March to August inclusive) to minimise the risk of disturbance to breeding birds. If this is not possible, such vegetation should be checked prior to removal by a suitably experienced ecologist to confirm the absence of active nests. If active nests are found, vegetation should be left undisturbed and suitably buffered from works until all birds have fledged. Specific advice should be sought prior to undertaking the clearance.

### Amphibians

- 4.47 Given the lack of suitable breeding habitat within the Site, the distance between the Site and the nearest potentially suitable breeding habitat, and the presence of extensive areas of suitable terrestrial habitat between the two locations, it is considered unlikely that great crested newt would be present within the site. The Site does not currently provide suitable habitat for other amphibians and is therefore considered to be of negligible value for amphibians.

<sup>36</sup> Brown, A. & Grice, P. (2005) *Birds in England*

## Reptiles

- 4.48 The Reptile Survey has recorded a 'good' population of common lizard within the site, with this population mainly associated with the small bank separating the northern and southern parts of the site, and the northern site boundary.
- 4.49 Within Suffolk common lizard '*fare well along the coast and heathland areas of the Sandlings and Brecks*<sup>37</sup> and the Provisional Suffolk Amphibian and Reptile Atlas<sup>38</sup> illustrates this with populations recorded in the Woodbridge area. The population within the site is therefore considered to be of Local value.
- 4.50 A mitigation strategy has been proposed (see separate Reptile Survey Report for full details), the main element of which involves translocation of lizards out of areas where they might be harmed into an on-site receptor area. The receptor area will be designed to provide optimum habitat for lizards which will include planting scrub and creating suitable hibernacula. Away from the receptor area, the proposed development green infrastructure will provide additional suitable habitat. The strategy includes post translocation monitoring for two years to inform management of the receptor site and to assess the effectiveness of the strategy.
- 4.51 Implementation of the proposed mitigation is considered likely to ensure that the current conservation status of the recorded population is maintained.

## Notable Plants

### Common Cudweed

- 4.52 Common cudweed is afforded Near Threatened status<sup>39</sup> and is listed within the Suffolk Rare Plant Register<sup>40</sup>. It is listed as a Category 4 species (declining but widespread) and is described as which describes it as being "*Frequent on light soils in the Sandlings and Brecks.*"
- 4.53 This is an annual species which requires continuous bare ground or regular disturbance to create bare ground conditions to enable seed germination and was in localised areas of the site in abundance. Beyond the site boundary areas of short rabbit-grazed vegetation were frequently encountered on abandoned land and close to the A12, and common cudweed was abundant here. Given the apparent abundance of this species in the immediate local area, the loss of the population within the site is considered unlikely to have a significant impact on the status of this Suffolk Rare Plant List species.
- 4.54 The common cudweed population is therefore considered to be of Local value.

<sup>37</sup> Suffolk Wildlife Trust. (undated). *Common (viviparous) lizard*. [webpage]. Available at: <http://www.suffolkwildlifetrust.org/node/8632> [Accessed 04/11/2015].

<sup>38</sup> Sanford, M. & Baker, J. (2007). *Suffolk Amphibian and Reptile Atlas – Provisional (2007)*. [online]. Suffolk Biological Records Centre and Suffolk Amphibian and Reptile Group. Available at: <http://www.suffolkbrc.org.uk/sites/default/files/SuffolkHerpsAtlasProv2007.pdf> [Accessed 04/11/2015].

<sup>39</sup> Stroh, P.A., Leach, S.J., August, T.A., Walker, K.J., Pearman, D.A., Rumsey, F.J., Harrower, C.A., Fay, M.F., Martin, J.P., Pankhurst, T., Preston, C.D. & Taylor, I. (2014). *A Vascular Plant Red List for England*. Botanical Society of Britain and Ireland: Bristol. [online] Available at: [http://www.bsbi.org.uk/England\\_Red\\_List\\_1.pdf](http://www.bsbi.org.uk/England_Red_List_1.pdf) [Accessed 04/11/2015]

<sup>40</sup> Suffolk Biological Records Centre. (2005). *Suffolk Rare Plant Register*. [online]. Available at: <http://www.suffolkbrc.org.uk/sites/default/files/rpr.PDF> [Accessed 04/11/2015].

**Biodiversity Gains**

- 4.55 Guidance within paragraph 109 of the NPPF is that the planning system should minimise the impact of development on biodiversity and also provide a net gain in biodiversity. Paragraph 118 of the NPPF outlines how this objective of paragraph 109 can be achieved by the application of several key principles when local authorities are determining planning applications. One of these is to encourage opportunities to incorporate biodiversity in and around developments. Development Management Policy DM27 of the Suffolk Coastal District Plan provides the local mechanism for achieving this NPPF guidance.
- 4.56 The Development Framework Plan shows a significant area of undeveloped land as informal Public Open Space running through the centre of the development which is of sufficient size to incorporate many features to increase the current biodiversity value of the site; these include:
- Landscape woodland planting;
  - A wetland area;
  - Wildflower-rich grassland; and
  - Bat roosting boxes and bird nest boxes.
- 4.57 As the proposal is for outline permission at the reserved matters stage there will be further opportunities to maximise both this area and other green infrastructure within the built development to maximise biodiversity gain.

## 5.0 NON-TECHNICAL SUMMARY

- 5.1 An ecological appraisal has been undertaken on an area of land (the Site), 12.67 ha in adjacent to Duke's Park, Woodbridge.
- 5.2 The objective of the appraisal was to consider any potential ecological constraints to a proposal for residential development for up to 215 dwellings with associated infrastructure and landscaping on the Site.
- 5.3 The assessment was undertaken by FPCR over the period March to September 2014.
- 5.4 The Site was found to be in close proximity to the Deben Estuary which is afforded an International conservation status.
- 5.5 The assessment concluded that the majority of the Site was formed by four fields of poor semi-improved grassland with a single internal hedgerow boundary. Other smaller areas of habitat included ephemeral/short perennial vegetation, mature hedgerow trees, scrub, tall ruderal herbs, a drainage ditch dominated by tall ruderal herbs and an area of disturbed ground. Common cudweed, which has both a national and local conservation status, was found to be locally abundant within some areas. A specific survey for reptiles recorded a 'good' population of common lizard.
- 5.6 An assessment undertaken by Ecology Solutions has concluded that the proposed development would not result in a significant adverse effect on the Deben Estuary.
- 5.7 None of the habitats or species recorded within the site were considered to be of any greater value than Local value.
- 5.8 To be compliant with legislation the proposed development will be required to ensure that no common lizard are injured or killed during any works associated with the proposed development.
- 5.9 A reptile mitigation strategy has been proposed to ensure compliance with legislation and to ensure that the conservation status of the common lizard population is maintained.
- 5.10 Green infrastructure within the proposed development will be enhanced by the provision of areas of tree planting, wetland areas, species-rich grassland and the provision of bat roosting boxes and bird nest boxes.
- 5.11 The assessment has considered that all necessary surveys have been undertaken to provide an accurate baseline against which the potential effects of the proposed development can be accurately assessed. Three mature trees within the Site's outer boundary hedges are considered to have low potential to support roosting bats. These trees will be retained, but if this situation changes additional survey work for roosting bats should be undertaken. Badger are not currently using the Site but they are a transient species; consequently, additional survey work should be undertaken prior to the commencement of any construction works to ensure that this situation has not changed. Should any vegetation clearance need to be undertaken during the bird breeding season this should be under the supervision of an ecologist to ensure that nesting birds are not disturbed.

## 6.0 APPENDICES

### APPENDIX A: Target Notes

#### Target Notes 1 & 2:

- 6.1 TN2 is a large earth bund which creates a small valley (TN1) between the bund and hedge H4. The bund is vegetated by coarse grasses and tall ruderal herbs with the following forming the key components;

COMMON NAME	SPECIES
Bramble	<i>Rubus fruticosus</i> agg.
Broad-leaved Dock	<i>Rumex obtusifolius</i>
Cleavers	<i>Galium aparine</i>
Cock's-foot	<i>Dactylis glomerata</i>
Common Mallow	<i>Malva sylvestris</i>
Common Nettle	<i>Urtica dioica</i>
Creeping Thistle	<i>Cirsium arvense</i>
Hogweed	<i>Heracleum sphondylium</i>
White Dead-nettle	<i>Lamium album</i>
Yorkshire-fog	<i>Holcus lanatus</i>



#### Target Note 3:

- 6.2 Boundary with adjacent properties. This does not really constitute a hedge but more a line of mature elm, blackthorn *Prunus spinosa*, hawthorn and garden privet *Ligustrum ovalifolium*. At the south end there is a large mature tree (not accessed closely to determine the species) which has recently been pruned to form a monolith. A smaller tree nearby has been also been recently pruned in a similar manner.



#### Target Note 4:

- 6.3 An area of abandoned cars, disturbed ground close to TN3, an extensive area of bramble scrub with associated tall ruderal herbs such as common nettle and cow parsley *Anthriscus sylvestris*.

#### Target Note 5:

- 6.4 Small allotment area.

**Target Note 6:**

- 6.5 Old shipping containers. An old shed of breeze block and asbestos roof construction, with half the roof missing. An area of concrete hard-standing. Old cars and boats.

**(Target Notes 4, 5 & 6)****Target Note 7:**

- 6.6 An area of disturbed ground with old shipping containers and dumped rubbish. At the eastern end (7a) there is a large earth bund which has recently been either added to, or re-profiled, as this was mostly bare soil with no vegetation during the March survey but tall-ruderal herbs had established by the time of the August survey:

COMMON NAME	SPECIES	ABUNDANCE
Common Nettle	<i>Urtica dioica</i>	Locally abundant
Common Mallow	<i>Malva sylvestris</i>	Frequent
Hemlock	<i>Conium maculatum</i>	Frequent
Black Horehound	<i>Ballota nigra</i>	Locally frequent
Field Horsetail	<i>Equisetum arvense</i>	Locally frequent
Bristly Ox-tongue	<i>Helminthotheca echioides</i>	Occasional
Great Willowherb	<i>Epilobium hirsutum</i>	Occasional
Creeping Thistle	<i>Cirsium arvense</i>	Occasional
Mugwort	<i>Artemisia vulgaris</i>	Occasional
Bugloss	<i>Anchusa arvensis</i>	Occasional
Field Bindweed	<i>Convolvulus arvensis</i>	Occasional
Black Nightshade	<i>Solanum nigrum</i>	Occasional
White Bryony	<i>Bryonia dioica</i>	Rare

**Target Note 8:**

- 6.7 A steep bank falling down to an area of lower ground which incorporates TNs 4, 5, 6 & 7. Vegetated by; occasional gorse *Ulex europaeus*, elm and a few mature holly, with locally abundant bramble scrub; tall ruderal herbs and coarse grassland with bracken and common nettle locally abundant. Abundant rabbit holes throughout. Key species present are:



COMMON NAME	SPECIES
Elm	<i>Ulmus agg.</i>
Holly	<i>Ilex aquifolium</i>
Bracken	<i>Pteridium aquilinum</i>
Bramble	<i>Rubus fruticosus agg.</i>
Common Couch	<i>Elytrigia repens</i>
Common Mallow	<i>Malva sylvestris</i>
Common Nettle	<i>Urtica dioica</i>
Common Ragwort	<i>Senecio jacobaea</i>
Creeping Thistle	<i>Cirsium arvense</i>
Prickly Lettuce	<i>Lactuca serriola</i>
White Dead-nettle	<i>Lamium album</i>
Yorkshire-fog	<i>Holcus lanatus</i>



#### Target Note 9;

- 6.8 Boundary with the adjacent railway. Has been fenced against rabbits in the past but this is now in a state of disrepair. A small drainage ditch, flowing in a westerly direction borders the fence on the adjacent Railtrack land.



#### Target Note 10

- 6.9 A drainage ditch which flows southwards towards the railway line. The channel has a narrow profile which is largely dominated by great willowherb with locally frequent to abundant common nettle on the drier bank tops and hedge bindweed *Calystegia sepium ssp. sepium*. The common mosses rough-stalked feather-moss and common feather-moss are abundant in the shaded conditions. The associated grassland on the banks and edges is tussocky and formed by coarse grasses such as cock's-foot and false oat-grass. Cleavers are frequent throughout. At the southern end the ditch opens out to a wider area. A few holes were noted in the banks but water depth was shallow and there were no field signs for water vole.



#### Target Note 11

- 6.10 An old tin shed and newer small structures housing electrical switch gear – labels and pipes suggesting that this was a former irrigation system.





**Target Note 12:**

- 6.11 Open boundary and garden fences of adjacent properties

**Target Note 13:**

- 6.12 Leylandii garden hedge

**Target Note 14:**

- 6.13 Post and rail wooden fence with wire netting forming a garden boundary

**Target Note 15**

- 6.14 Species-poor neutral grassland. Formed by a sward dominated by false oat-grass, cock's-foot and Yorkshire-fog. With the exception of several ruderal species (creeping thistle, field horsetail and rosebay willowherb common nettle, and common ragwort) the sward contains few forbs. The species composition and structure of the sward is indicative of grassland which has developed via natural regeneration following abandonment of cultivation of the land.

COMMON NAME	SPECIES	ABUNDANCE
Common Nettle	<i>Urtica dioica</i>	abundant
Cock's-foot	<i>Dactylis glomerata</i>	abundant
Yorkshire-fog	<i>Holcus lanatus</i>	abundant
Great Willowherb	<i>Epilobium hirsutum</i>	frequent to locally abundant
Hogweed	<i>Heracleum sphondylium</i>	occasional
Common Ragwort	<i>Senecio jacobaea</i>	frequent to abundant
Common Field-speedwell	<i>Veronica persica</i>	occasional
Dandelion	<i>Taraxacum officinale</i> agg.	occasional
Dove's-foot Crane's-bill	<i>Geranium molle</i>	rare
Hard Rush	<i>Juncus inflexus</i>	rare
Creeping Thistle	<i>Cirsium arvense</i>	occasional to locally frequent
Ground Ivy	<i>Glechoma hederacea</i>	locally frequent
Cleavers	<i>Galium aparine</i>	frequent
False Oat-grass	<i>Arrhenatherum elatius</i>	present
Perennial Rye-grass	<i>Lolium perenne</i>	present
Common Bent	<i>Agrostis capillaris</i>	present
Meadow grass spp.	<i>Poa</i> spp.	Present
Common Couch	<i>Elytrigia repens</i>	present

**Target Note 15a (see TN19)**

**Target Note 16:**

- 6.16 Boundary with adjacent gardens. A line of mature oak *Quercus sp.*, which are off-site. Boundary formed by a wire netting fence with occasional bramble and tall ruderal herbs on the margins.

**Target Note 17:**

- 6.17 Rough grassland, which like TN15 appears to have arisen from natural regeneration. this is dominated by Yorkshire-fog with some common couch, common mallow, spear thistle, common chickweed, and locally abundant annual nettle, common ragwort and wild carrot.

**Target Note 18:**

- 6.18 This field is very similar to the other fields in its species composition although it does appear to support more cock's-foot than TN17.

**Target Note 19:**

- 6.19 A short rabbit-grazed turf which is dominated by bryophytes. Smaller amounts of a similar vegetation throughout the other fields but always in much smaller areas:

COMMON NAME	SPECIES	ABUNDANCE
Whitish Feather-moss	<i>Brachythecium albicans</i>	abundant
Neat Feather-moss	<i>Pseudoscleropodium purum</i>	abundant
Common Feather-moss	<i>Kindbergia praelonga</i>	frequent
Springy Turf-moss	<i>Rhytidiadelphus squarrosus</i>	locally frequent
Redshank	<i>Ceratodon purpureus</i>	occasional
Common Ragwort	<i>Senecio jacobaea</i>	abundant
Common Cudweed	<i>Filago vulgaris</i>	abundant
Smooth Hawk's-beard	<i>Crepis capillaris</i>	abundant
Common Stork's-bill	<i>Erodium cicutarium</i>	abundant
Dove's-foot Crane's-bill	<i>Geranium molle</i>	frequent to locally abundant
Common Mallow	<i>Malva sylvestris</i>	frequent
Yarrow	<i>Achillea millefolium</i>	locally frequent to locally abundant
Red Dead-nettle	<i>Lamium purpureum</i>	occasional to locally frequent
Common Mouse-ear	<i>Cerastium fontanum</i>	occasional
Small Nettle	<i>Urtica urens</i>	occasional
Cat's-ear	<i>Hypochaeris radicata</i>	occasional
Scarlet pimpernel	<i>Anagallis arvensis</i>	occasional

**Target Note 15a** is similar to TN19 but with the bryophyte component much reduced and often absent.

**Target Note 20:**

- 6.20 A bank with abundant rabbit holes. Vegetated by tall ruderal herbs, with common nettle and great willowherb particularly abundant at the base, and tussocky grassland. A small amount of bramble scrub is also present.










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## **Appendix B: Hedgerow Survey Sheets**

Parallel to another hedge	No
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<p><b>Woodland Plants:</b>  <i>Arum maculatum</i></p>
<p><b>Notes:</b> Difficult to define as a hedge as, for much of the length, associated with plantation woodland on the banks of the adjacent road but has been considered as a hedge. South facing bank on sandy soil – full of rabbit holes. Largely dominated by suckering elm, with many dead young stems. Mixed ground flora, but generally sparse, reflecting sandy soils.</p>
<p><b>Standards</b> = Stem diam' <math>\geq</math> 20cm at 1.3m high. For multi-stemmed trees: at least two stems &gt; 15cm diameter at 1.3m high</p>

ASSESSMENT CRITERIA	
Rare or protected species present	No
7 or more woody species	No
6 woody species and at least 3 associated features	No
6 woody species and at least one of 4 listed species	No
5 woody species and at least 4 associated features	No
Adjacent to PROw and includes at least 4 woody species and at least 2 associated features	No

SITE: 6106E Duke's Park, Woodbridge				DATE: 13/03/14		SURVEYOR: Nick Law		
New hedge	x	Old laid	x	Unmanaged	✓	Cut/trimmed	x	
Track/roadside	✓	Fence/wall	x	Parish boundary	x	Garden boundary	x	
HEDGE RECORD AND EVALUATION SHEET					Hedge No.		1	
1. Recently laid or coppiced			Yes/No (if yes, score 7 & ignore criteria 2 to 4)				No	
HEIGHT, WIDTH & X-Section			SCORE	1	2	3	4	
2. Height (exclude bank)			4	0-1m	1-2m	2-4m	>4m	
3. Width			3	0-1m	1-2m	2-3m	>3m	
4. Average cross-section			4					
5. STANDARD TREES – (For HEGS mature trees are >10cm diameter at breast height Young trees/saplings are <10cm diameter at breast height) - [list species]								
Quercus robur ( 1 mature & 1 young)								
No. of mature trees/pollards No. of young trees						1		
						1		
6. Length			306m					
			SCORE	1	2	3	4	
7. Mature standards/100m (score = 0 if none present)			1	≤1	1≤3	3≤5	>5	
8. Young standards/100m (score = 0 if none present)			1	≤1	1≤3	3≤5	>5	
STRUCTURAL SCORE								13
			SCORE	1	2	3	4	
9. Percentage gaps			3	>30%	30-10%	10-0%	No gaps	
10. No. of end connections			3	1	2	3	≥4	
CONNECTIVITY SCORE								6
11. HEDGE CANOPY SPECIES – Species present:								
See Hedgerow Regulations survey sheet								
Combined total of tree and shrub species						6		
			SCORE	1	2	3	4	
12. Native species dominant (If exotic spp. dominant, then score = 0)			2		1-2 spp.		mixed	
13. Total no. of tree and shrub species present			2	1-4	5-7	8-9	≥10	
DIVERSITY SCORE								4
			SCORE	1	2	3	4	
14. Hedgebank/lynchet (If not present score = 0)			4		0-0.5m	0.5-1m	≥1m	
15. Ditch (If not present score = 0)			0					
16. Grass verge (>2m wide) (If not present score = 0)			2		1 side		2 sides	
ASSOCIATED FEATURES SCORE								6
17. NOTES - Ground flora & climbers. Urtica dioica (o), Galium aparine (o), Lamium purpureum (o), Glechoma hederacea (o) Senecio jacobaea (o), Urtica urens (r), Hedera helix (la), Conium maculatum (r), Veronica hederifolia (r), Galanthus sp. (r), Stellaria media (o)								
18. Notable species present			Pop nig, Til cor, Pyr cor, Sor tor, Til pla, other	None		GRADE		
				YES				
				NO			2+	
















Parallel to another hedge	No
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<p><b>Woodland Plants:</b></p> <p><i>Arum maculatum</i></p>
<p><b>Notes:</b></p> <p>Sits on top of a steep bank falling to a road. Largely dominated by elm and more locally by blackthorn (which is often clothed in ivy). Old rabbit fencing along entire length. Recently been trimmed hard.</p>
<p><b>Standards</b> = Stem diam' <math>\geq</math> 20cm at 1.3m high. For multi-stemmed trees: at least two stems &gt; 15cm diameter at 1.3m high</p>

ASSESSMENT CRITERIA	
Rare or protected species present	No
7 or more woody species	No
6 woody species and at least 3 associated features	No
6 woody species and at least one of 4 listed species	No
5 woody species and at least 4 associated features	No
Adjacent to PROw and includes at least 4 woody species and at least 2 associated features	No








SITE: 6106E Duke's Park, Woodbridge				DATE: 13/03/14		SURVEYOR: Nick Law	
New hedge	x	Old laid	x	Unmanaged	x	Cut/trimmed	✓
Track/roadside	x	Fence/wall	x	Parish boundary	x	Garden boundary	
<b>HEDGE RECORD AND EVALUATION SHEET</b>					<b>Hedge No.</b>		<b>3</b>
1. Recently laid or coppiced			Yes/No (if yes, score 7 & ignore criteria 2 to 4)			No	
HEIGHT, WIDTH & X-Section			SCORE	1	2	3	4
2. Height (exclude bank)			2	0-1m	1-2m	2-4m	>4m
3. Width			2	0-1m	1-2m	2-3m	>3m
4. Average cross-section			3				
5. STANDARD TREES – (For HEGS mature trees are >10cm diameter at breast height Young trees/saplings are <10cm diameter at breast height) - [list species]							
No. of mature trees/pollards						0	
No. of young trees						0	
6. Length			146m				
			SCORE	1	2	3	4
7. Mature standards/100m (score = 0 if none present)			0	≤1	1≤3	3≤5	>5
8. Young standards/100m (score = 0 if none present)			0	≤1	1≤3	3≤5	>5
<b>STRUCTURAL SCORE</b>							<b>5</b>
			SCORE	1	2	3	4
9. Percentage gaps			3	>30%	30-10%	10-0%	No gaps
10. No. of end connections			2	1	2	3	≥4
<b>CONNECTIVITY SCORE</b>							<b>5</b>
11. HEDGE CANOPY SPECIES – Species present:							
See Hedgerow Regulations Sheet.							
Combined total of tree and shrub species						5	
			SCORE	1	2	3	4
12. Native species dominant (If exotic spp. dominant, then score = 0)			2		1-2 spp.		mixed
13. Total no. of tree and shrub species present			2	1-4	5-7	8-9	≥10
<b>DIVERSITY SCORE</b>							<b>4</b>
			SCORE	1	2	3	4
14. Hedgebank/lynchet (If not present score = 0)			4		0-0.5m	0.5-1m	≥1m
15. Ditch (If not present score = 0)			0				
16. Grass verge (>2m wide) (If not present score = 0)			2		1 side		2 sides
<b>ASSOCIATED FEATURES SCORE</b>							<b>6</b>
17. NOTES - Ground flora & climbers. Limited & largely ruderal. <i>Achillea millefolium</i> <i>Lamium purpureum</i> <i>Hedera helix</i> <i>Galium aparine</i> <i>Rubus fruticosus</i> agg. <i>Dactylis glomerata</i> <i>Urtica dioica</i> <i>Pteridium aquilinum</i> (Frequent at west end of hedge)							
18. Notable species present			Pop nig, Til cor, Pyr cor, Sor tor, Til pla, other				
						YES	
						NO	
						-3	



Parallel to another hedge	No
---------------------------	----

<p><b>Woodland Plants:</b>  <i>Arum maculatum</i></p>
<p><b>Notes:</b> South side cannot be accessed for cutting because of the bund.          Blackthorn now suckering on this inaccessible side.          Dominated by elm and blackthorn.</p>
<p><b>Standards</b> = Stem diam' <math>\geq</math> 20cm at 1.3m high. For multi-stemmed trees: at least two stems &gt; 15cm diameter at 1.3m high</p>

ASSESSMENT CRITERIA	
Rare or protected species present	No
7 or more woody species	No
6 woody species and at least 3 associated features	No
6 woody species and at least one of 4 listed species	No
5 woody species and at least 4 associated features	No
Adjacent to PROw and includes at least 4 woody species and at least 2 associated features	No

SITE: 6106E Duke's Park, Woodbridge				DATE: 13/03/14		SURVEYOR: Nick Law	
New hedge	Old laid	Unmanaged		Part	Cut/trimmed	Part	
Track/roadside	Fence/wall	Parish boundary			Garden boundary		
<b>HEDGE RECORD AND EVALUATION SHEET</b>					<b>Hedge No.</b>		<b>4</b>
1. Recently laid or coppiced		Yes/No (if yes, score 7 & ignore criteria 2 to 4)				No	
HEIGHT, WIDTH & X-Section		SCORE	1	2	3	4	
2. Height (exclude bank)		2	0-1m	1-2m	2-4m	>4m	
3. Width		2	0-1m	1-2m	2-3m	>3m	
4. Average cross-section		4					
5. STANDARD TREES – (For HEGS mature trees are >10cm diameter at breast height Young trees/saplings are <10cm diameter at breast height) - [list species]							
No. of mature trees/pollards						0	
No. of young trees						0	
6. Length		44m					
		SCORE	1	2	3	4	
7. Mature standards/100m (score = 0 if none present)		0	≤1	1≤3	3≤5	>5	
8. Young standards/100m (score = 0 if none present)		0	≤1	1≤3	3≤5	>5	
<b>STRUCTURAL SCORE</b>							
10							
		SCORE	1	2	3	4	
9. Percentage gaps		4	>30%	30-10%	10-0%	No gaps	
10. No. of end connections		1	1	2	3	≥4	
<b>CONNECTIVITY SCORE</b>							
5							
11. HEDGE CANOPY SPECIES – Species present:							
See Hedgerow Regulations survey sheet							
Combined total of tree and shrub species						3	
		SCORE	1	2	3	4	
12. Native species dominant (If exotico spp. dominant, then score = 0)				1-2 spp.		mixed	
13. Total no. of tree and shrub species present			1-4	5-7	8-9	≥10	
<b>DIVERSITY SCORE</b>							
3							
		SCORE	1	2	3	4	
14. Hedgebank/lynchet (If not present score = 0)		0		0-0.5m	0.5-1m	≥1m	
15. Ditch (If not present score = 0)		0					
16. Grass verge (>2m wide) (If not present score = 0)				1 side		2 sides	
<b>ASSOCIATED FEATURES SCORE</b>							
2							
17. NOTES - Ground flora & climbers. <i>Pteridium aquilinum</i> (LA) <i>Urtica dioica</i> <i>Galium aparine</i> <i>Rubus fruticosus</i> agg. <i>Hedera helix</i> (A)							
18. Notable species present		Pop nig, Til cor, Pyr cor, Sor tor, Til pla, other					<b>GRADE</b>
					YES		
					NO		3



Grid Ref:	
Start:	
Finish:	
Length of hedge (m)	166

Total gaps (m)	18
% gaps	10.8

Length of ditch (m)	0
% of total	0

Length of bank/wall (m)	0
% of total	0

Connections	Pt's
Other hedges (1)	0
Woodland (2)	0
Ponds (2)	0
TOTAL	0

Adjacent to a PRow	No
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Parallel to another hedge	No
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<p><b>Woodland Plants:</b></p> <p><i>Arum maculatum</i>      <i>Mercurialis perennis</i></p>
<p><b>Notes:</b>      Species rich but largely dominated by hazel.  Ivy very abundant.  Evidence of previous dormice survey work (old survey tubes)</p>
<p><b>Standards</b> = Stem diam' <math>\geq</math> 20cm at 1.3m high. For multi-stemmed trees: at least two stems &gt; 15cm diameter at 1.3m high</p>

<b>ASSOCIATED FEATURES</b>	<b>i</b>	<b>ii</b>
Use column i if adjacent to a PROW		
One or more standards per 50m		x
Less than 10% gaps		x
Ditch for over 50% of hedge		x
Bank or wall for over 50% of hedge		x
Connections scoring 4 points or more		x
A parallel hedge within 15m		x
Three or more woodland species		x
<b>TOTAL</b>		0

ASSESSMENT CRITERIA	
Rare or protected species present	No
7 or more woody species	No
6 woody species and at least 3 associated features	No
6 woody species and at least one of 4 listed species	No
5 woody species and at least 4 associated features	No
Adjacent to PROw and includes at least 4 woody species and at least 2 associated features	No

SITE: 6106E Duke's Park, Woodbridge				DATE: 13/03/14		SURVEYOR: Nick Law	
New hedge		Old laid		Unmanaged		Cut/trimmed	
Track/roadside		Yes		Fence/wall		Parish boundary	
						Garden boundary	
HEDGE RECORD AND EVALUATION SHEET						Hedge No. 5	
1. Recently laid or coppiced				Yes/No (if yes, score 7 & ignore criteria 2 to 4)			No
HEIGHT, WIDTH & X-Section				SCORE	1	2	3
2. Height (exclude bank)				3	0-1m	1-2m	2-4m
3. Width				3	0-1m	1-2m	2-3m
4. Average cross-section				2			
5. STANDARD TREES – (For HEGS mature trees are >10cm diameter at breast height Young trees/saplings are <10cm diameter at breast height) - [list species]							
Mature trees ( <i>Quercus robur</i> )    Young tree ( <i>Ulmus agg.</i> )							
						No. of mature trees/pollards	2
						No. of young trees	1
6. Length				166m			
				SCORE	1	2	3
7. Mature standards/100m (score = 0 if none present)					≤1	1≤3	3≤5
8. Young standards/100m (score = 0 if none present)					≤1	1≤3	3≤5
STRUCTURAL SCORE							
11							
				SCORE	1	2	3
9. Percentage gaps				2	>30%	30-10%	10-0%
10. No. of end connections				0	1	2	3
CONNECTIVITY SCORE							
2							
11. HEDGE CANOPY SPECIES – Species present:							
See Hedgerow Regulations survey sheet							
						Combined total of tree and shrub species	8
				SCORE	1	2	3
12. Native species dominant (If exotic spp. dominant, then score = 0)				2		1-2 spp.	mixed
13. Total no. of tree and shrub species present				3	1-4	5-7	8-9
DIVERSITY SCORE							
5							
				SCORE	1	2	3
14. Hedgebank/lynchet (If not present score = 0)				0		0-0.5m	0.5-1m
15. Ditch (If not present score = 0)				0			
16. Grass verge (>2m wide) (If not present score = 0)				4		1 side	2 sides
ASSOCIATED FEATURES SCORE							
4							
17. NOTES - Ground flora & climbers. <i>Galium aparine</i> (F) <i>Glechoma hederacea</i> (LF) <i>Urtica dioica</i> (LA) <i>Hedera helix</i> (LF/LA)							
18. Notable species present				Pop nig, Til cor, Pyr cor, Sor tor, Til pla, other			GRADE
				YES			
				NO			3



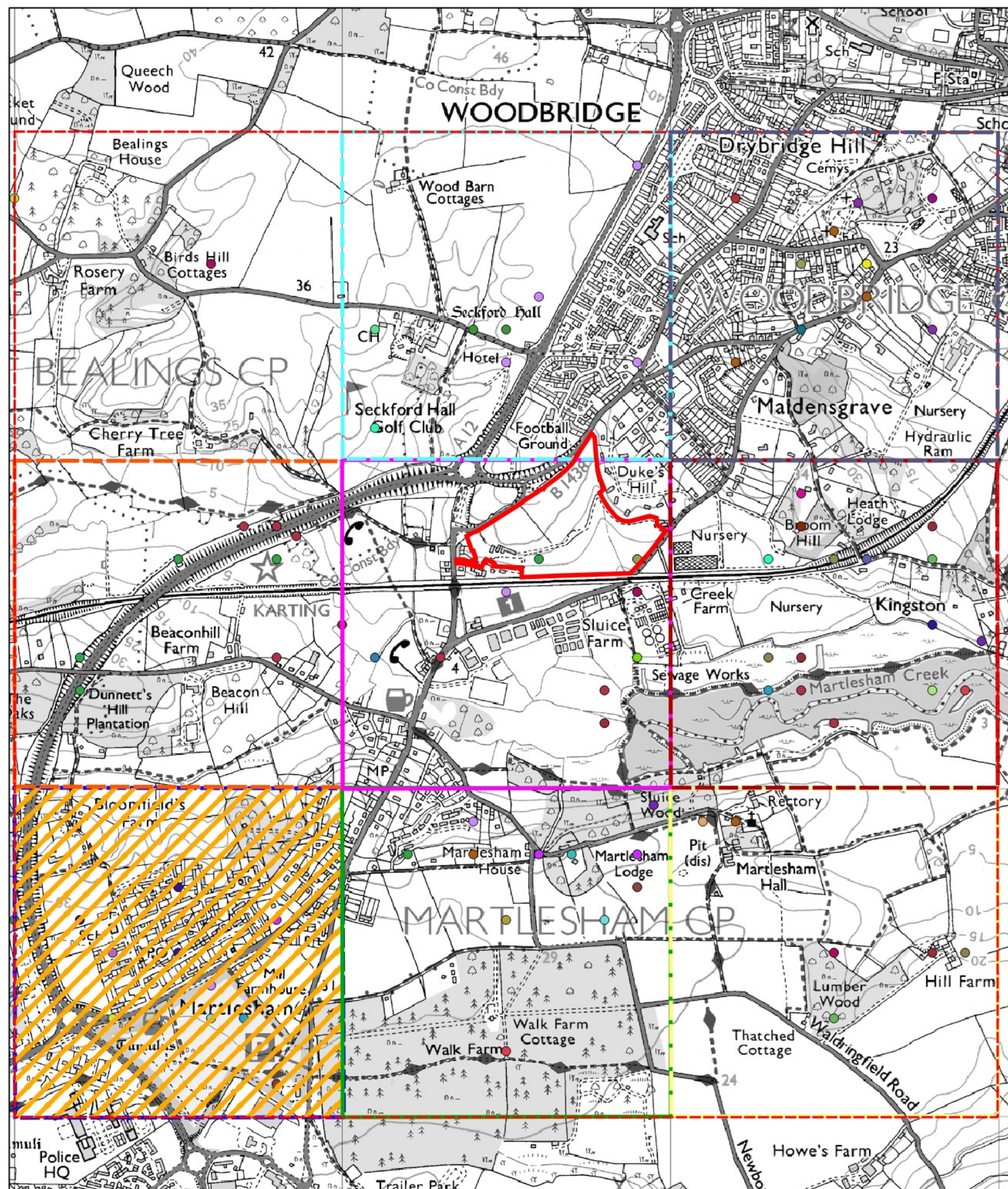












- Site Boundary
- Search Area
- Adder
- Barn Owl
- Brown Hare
- Brown Long-eared Bat
- Catilaria atomarioides
- Common Cudweed
- Common Kestrel
- Common Linnet
- Common Lizard
- Common Nightingale
- Common Seal
- Common Swift
- Common Toad
- Eurasian Badger
- Eurasian Water Shrew
- European Nightjar
- European Otter
- European Water Vole
- Grayling
- Great Spotted Woodpecker
- Green Woodpecker
- Green-winged Orchid
- Grey Wagtail
- House Sparrow
- Little Owl
- Loose Silky-bent
- Lunar Yellow Underwing
- Pipistrelle
- Pipistrelle Bat species
- Prickly Poppy
- Slow-worm
- Small Heath
- Spotted Flycatcher
- Stag Beetle
- Tawny Owl
- West European Hedgehog
- White-letter Hairstreak
- Wood Nuthatch
- Xanthoria ucrainica
- Species records found within SK2648
- Bulrush Veneer
- Dittander
- Dot Moth
- Dusky Brocade
- Grayling
- Grey Dagger
- Heath Dog-violet
- Long-legged Tabby

- Oak Hook-tip
- Rosy Minor
- Rustic
- Small Heath
- Spotted Flycatcher
- Stag Beetle
- Swallowtail
- Wall
- Species records found within SK2548
- Little Owl
- Spotted Flycatcher
- Stag Beetle
- Species records found within SK2647
- Barn Owl
- Barn Swallow
- Bearded Tit
- Black Redstart
- Black-tailed Godwit
- Blue Tit
- Cetti's Warbler
- Common Cuckoo
- Common Goldeneye
- Common Greenshank
- Common Kestrel
- Common Kingfisher
- Common Redpoll
- Common Shelduck
- Common Tern
- Curlew Sandpiper
- Cyrtidula hippocastani
- Eurasian Curlew
- Eurasian Hobby
- Eurasian Treecreeper
- European Goldfinch
- European Greenfinch
- European Robin
- European Turtle Dove
- Greater Scaup
- Green Sandpiper
- Green Woodpecker
- Grey Wagtail
- Hedge Accentor
- Hen Harrier
- Herring Gull
- House Sparrow
- Little Egret
- Little Tern
- Northern Lapwing
- Pied Wagtail
- Purple Heron

- Reed Bunting
- Sand Martin
- Sky Lark
- Smew
- Tundra Swan
- Winter Wren
- Species records found within SK2547
- Barn Owl
- Barn Swallow
- Bearded Tit
- Black Redstart
- Blue Tit
- Chaenotheca brachypoda
- Common Bullfinch
- Common Crossbill
- Common Cuckoo
- Common Grasshopper Warbler
- Common Greenshank
- Common Kestrel
- Common Kingfisher
- Common Nightingale
- Common Redpoll
- Common Swift
- Common Tern
- Corn Crake
- Eurasian Hobby
- Eurasian Siskin
- Eurasian Treecreeper
- Eurasian Water Shrew
- European Goldfinch
- European Nightjar
- European Turtle Dove
- Fieldfare
- Firecrest
- Flat-brocade Moss
- Great Spotted Woodpecker
- Great Tit
- Greater Scaup
- Green Sandpiper
- Green Woodpecker
- Grey Wagtail
- Harvest Mouse
- Hen Harrier
- House Martin
- Lecania cyrtella
- Lesser Spotted Woodpecker
- Little Gull
- Little Owl
- Long-tailed Duck
- Marsh Tit
- Mediterranean Gull
- Northern Pintail
- Peregrine Falcon
- Pied Avocet
- Pied Wagtail
- Redwing
- Ruff
- Shaded Broad-bar
- Song Thrush
- Spotted Flycatcher
- Stonechat
- Tawny Owl
- Tree Pipit
- West European Hedgehog
- Whimbrel
- Willow Tit
- Winter Wren
- Wood Lark
- Wood Nuthatch
- Species records found within SK2447
- Eurasian Badger
- Five-banded Weevil-wasp
- Lasiglossum (Evylaeus) malachurum
- Sphcodes crassus
- Species records found within SK2646
- Brown Hare
- Common Cuckoo
- Common Linnet
- Grayling
- Sky Lark
- Song Thrush
- Wall
- White-letter Hairstreak
- Species records found within SK2546
- Bohemian Waxwing
- Cinnabar
- Common Nightingale
- Firecrest
- Great Egret
- Osprey
- Short-eared Owl
- Species records found within SK2426
- Bohemian Waxwing
- Common Lizard
- Common Toad
- Grayling
- Silver-studded Blue
- Small Heath
- Stag Beetle
- Wall
- West European Hedgehog



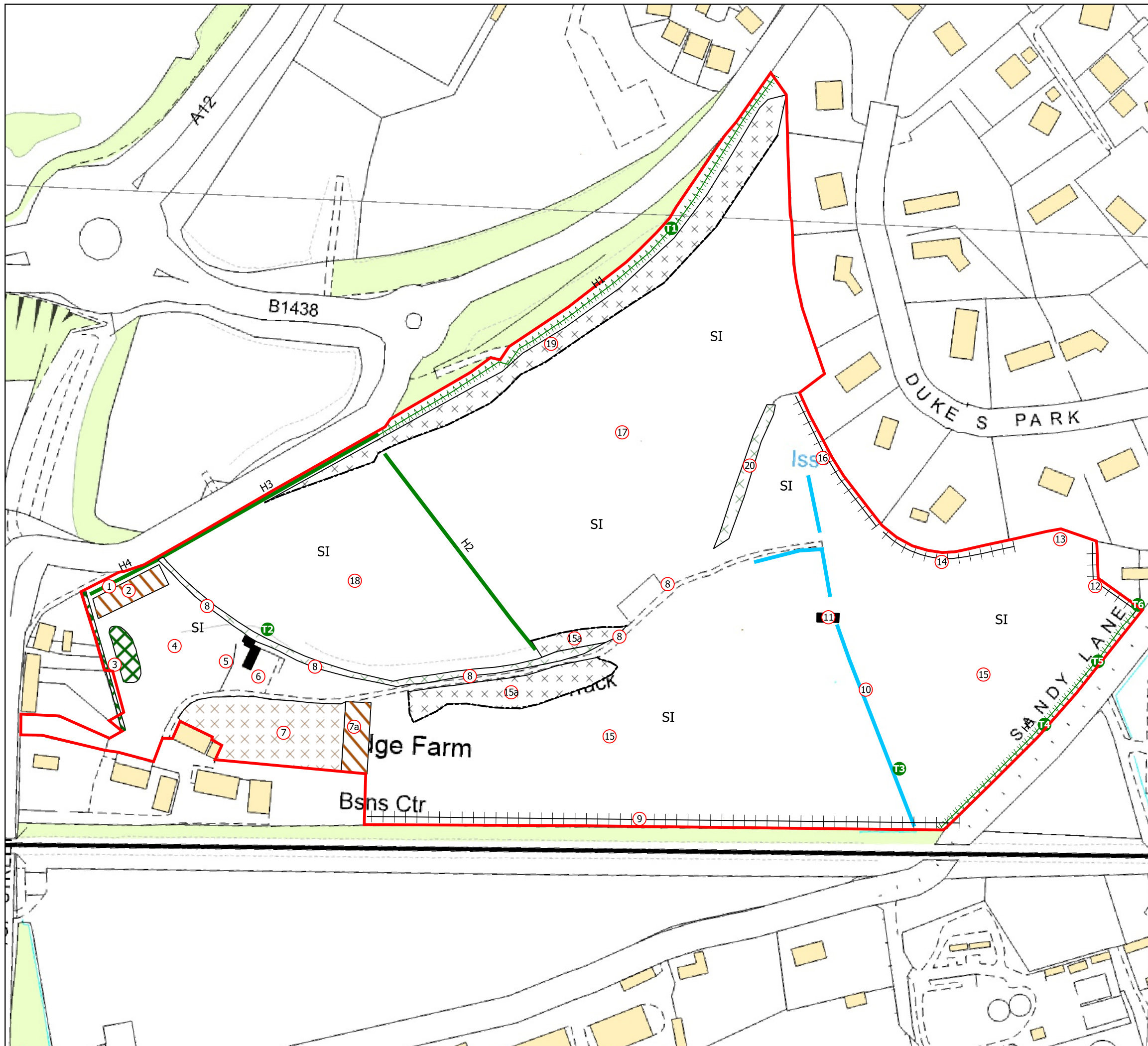
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Land off Duke's Park  
Woodbridge

Protected and Notable Species Plan









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## KEY

- Site Boundary
- Scrub Dense-continuous
- Scrub - scattered
- Broadleaved Tree (with Ref.)
- SI Species-poor grassland (SI)
- Tall herb - ruderal
- Running Water - eutrophic
- Ephemeral-short perennial vegetation
- Disturbed Ground
- Intact Hedge - Native Species-rich
- Intact Hedge - Native Species-poor
- Fence
- Buildings
- Target Notes (with Ref.)



-	06.11.2015	First Issue	AL	AL
rev	date	description	drm	chkd



masterplanning  
environmental assessment  
landscape design  
urban design  
ecology  
architecture  
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Gladman Developments Ltd. (Gladman)

Land off Duke's Park  
Woodbridge

## Phase 1 Habitat Plan

N



**Figure 3 6106-E-3**

17/11/2015

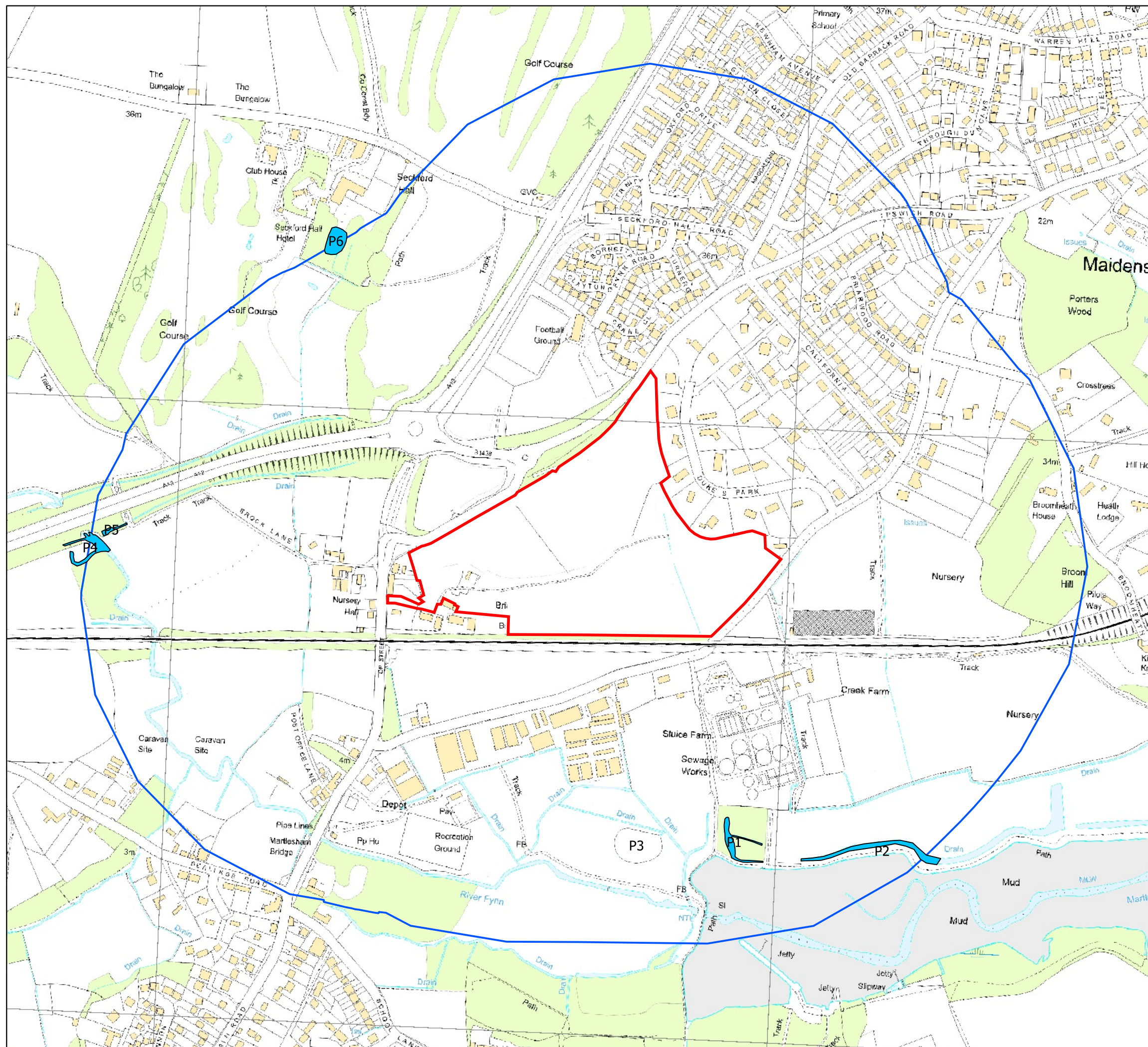
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## KEY

- Site Boundary
- 500m Buffer from Site Boundary
- Waterbody



0 100 200 300 m

06.11.2015	First Issue	AL	AL
rev	date	description	dm chkd



masterplanning  
 environmental assessment  
 landscape design  
 urban design  
 ecology  
 architecture  
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**Waterbody Plan**



**Figure 4 6106-E-04**

6/11/2015

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