Appendix 7.1:
Ecology Appraisal

Gladman Developments Ltd.

Land off Duke's Park, Woodbridge

ECOLOGICAL APPRAISAL

November 2015

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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)[1]. 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[2] and associated guidance[3,4] on local requirements for biodiversity.

[1] 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].

[2] 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].

[3] 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].

[4] 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[5]
- Colour 1:25,000 OS base maps[6]
- Aerial photographs from Google Earth[7].

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 13th March and 4th 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[8]. 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)[9].

2.8 Hedgerows were surveyed using the Hedgerow Evaluation and Grading System (HEGS)[10]. 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

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

[6] [Online]. www.ordnancesurvey.co.uk [Accessed 01/10/2015]

[7] [Online]. www.maps.google.co.uk [Accessed 01/10/2015]

[8] JNCC. (1990). *Handbook for Phase 1 habitat survey – a technique for environmental audit.* Peterborough: JNCC

[9] *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]

[10] 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[11] 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[12].

2.11 Mature trees within the Site were assessed for their status as veteran trees using DEFRA[13] and Natural England[14] 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)[15];
- The Protection of Badgers Act 1992[16];
- The Conservation of Habitats and Species Regulations 2010[17]; 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.

[11] *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].

[12] DEFRA. (1997). *The Hedgerow Regulations 1997. A Guide to the Law and Good Practice.* London: HMSO

[13] Rural Development Service. (2006). *Environmental Stewardship-Farm Environment Plan Guidance 009*.

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

[15] *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]

[16] *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].

[17] *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 [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[18].

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 16th 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 spilt – 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)

[18] 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.
Category 1 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.
Category 2a 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.	**Trees where no bat roost confirmed after further surveys:** 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. 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.
Category 2b 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	**Trees where no bat roost confirmed after further surveys:** 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

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.
Category 3 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)[19].

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:

[19] 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 350m 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"*[20]

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)

[20] Natural England. (1991). *Deben Estuary SSSI Citation.* [online]. Available at: 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"[21].

- 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"[22].

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)[23] and Government Circular 06/2005[24]. 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.

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

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

[23] 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 [Accessed 04/11/2015]

[24] 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 [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 Sluice Wood Kyson Meadows	305m to the south 610m to the south 1 km to the east	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. Mixed broadleaved woodland with plants such as wood spurge and pignut indicating a long history as a wooded site. 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:

<u>Mammals</u>

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)[25]. 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.

[25] 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 *Quercus robur*	An old pollard with approximately 6 large stems arising from the old cutting point. Densely clad by ivy *Hedera helix*; right from the base to nearly the top of the tree. No apparent decay. Category 2b bat roost potential.
T2	Pedunculate Oak *Quercus robur*	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 *Quercus robur*	A lapsed pollard. The crown is healthy but there is considerable decay at the top of the bolling and at the base of the stems. Category 3 bat roost potential. Potential suitable nesting conditions for birds, particularly owls.
T4	Elm *Ulmus* sp.	Dead and completely smothered by ivy. Category 2b bat roost potential.
T5	Pedunculate Oak *Quercus robur*	A lapsed pollard with multiple stems arising from the top of the bolling. 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 *Quercus robur*	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 form 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 21st August and the 30th 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)[26] 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.

[26] 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[27]. 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 27th 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;*

[27] 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-Terestrial_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[28]

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 5th 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.[29]

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;*

[28] 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].

[29] 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[30] 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'[31].

[30] 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 [Accessed 04/11/2015].

[31] 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[32]:

"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*.

[32] 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 350m 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[33].

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.

[33] 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 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[34]. 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

[34] 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[35].

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

[35] 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*, dunnock *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[36]). 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.

[36] 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'*[37] and the Provisional Suffolk Amphibian and Reptile Atlas[38] 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[39]and is listed within the Suffolk Rare Plant Register[40]. 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.

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

[38] 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].

[39] 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 [Accessed 04/11/2015]

[40] 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;
- Wildlflower-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	*Rubus fruticosus agg.*
Broad-leaved Dock	*Rumex obtusifolius*
Cleavers	*Galium aparine*
Cock's-foot	*Dactylis glomerata*
Common Mallow	*Malva sylvestris*
Common Nettle	*Urtica dioica*
Creeping Thistle	*Cirsium arvense*
Hogweed	*Heracleum sphondylium*
White Dead-nettle	*Lamium album*
Yorkshire-fog	*Holcus lanatus*

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	*Urtica dioica*	Locally abundant
Common Mallow	*Malva sylvestris*	Frequent
Hemlock	*Conium maculatum*	Frequent
Black Horehound	*Ballota nigra*	Locally frequent
Field Horsetail	*Equisetum arvense*	Locally frequent
Bristly Ox-tongue	*Helminthotheca echioides*	Occasional
Great Willowherb	*Epilobium hirsutum*	Occasional
Creeping Thistle	*Cirsium arvense*	Occasional
Mugwort	*Artemisia vulgaris*	Occasional
Bugloss	*Anchusa arvensis*	Occasional
Field Bindweed	*Convolvulus arvensis*	Occasional
Black Nightshade	*Solanum nigrum*	Occasional
White Bryony	*Bryonia dioica*	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	*Ulmus agg.*
Holly	*Ilex aquifolium*
Bracken	*Pteridium aquilinum*
Bramble	*Rubus fruticosus agg.*
Common Couch	*Elytrigia repens*
Common Mallow	*Malva sylvestris*
Common Nettle	*Urtica dioica*
Common Ragwort	*Senecio jacobaea*
Creeping Thistle	*Cirsium arvense*
Prickly Lettuce	*Lactuca serriola .*
White Dead-nettle	*Lamium album*
Yorkshire-fog	*Holcus lanatus*

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 Note11

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	*Urtica dioica*	abundant
Cock's-foot	*Dactylis glomerata*	abundant
Yorkshire-fog	*Holcus lanatus*	abundant
Great Willowherb	*Epilobium hirsutum*	frequent to locally abundant
Hogweed	*Heracleum sphondylium*	occasional
Common Ragwort	*Senecio jacobaea*	frequent to abundant
Common Field-speedwell	*Veronica persica*	occasional
Dandelion	*Taraxacum officinale agg.*	occasional
Dove's-foot Crane's-bill	*Geranium molle*	rare
Hard Rush	*Juncus inflexus*	rare
Creeping Thistle	*Cirsium arvense*	occasional to locally frequent
Ground Ivy	*Glechoma hederacea*	locally frequent
Cleavers	*Galium aparine*	frequent
False Oat-grass	*Arrhenatherum elatius*	present
Perennial Rye-grass	*Lolium perenne*	present
Common Bent	*Agrostis capillaris*	present
Meadow grass spp.	*Poa spp.*	Present
Common Couch	*Elytrigia repens*	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	*Brachythecium albicans*	abundant
Neat Feather-moss	*Pseudoscleropodium purum*	abundant
Common Feather-moss	*Kindbergia praelonga*	frequent
Springy Turf-moss	*Rhytidiadelphus squarrosus*	locally frequent
Redshank	*Ceratodon purpureus*	occasional
Common Ragwort	*Senecio jacobaea*	abundant
Common Cudweed	*Filago vulgaris*	abundant
Smooth Hawk's-beard	*Crepis capillaris*	abundant
Common Stork's-bill	*Erodium cicutarium*	abundant
Dove's-foot Crane's-bill	*Geranium molle*	frequent to locally abundant
Common Mallow	*Malva sylvestris*	frequent
Yarrow	*Achillea millefolium*	locally frequent to locally abundant
Red Dead-nettle	*Lamium purpureum*	occasional to locally frequent
Common Mouse-ear	*Cerastium fontanum*	occasional
Small Nettle	*Urtica urens*	occasional
Cat's-ear	*Hypochaeris radicata*	occasional
Scarlet pimpernel	*Anagallis arvensis*	occasional

Target Note 15a is similar to TN19 but with the bryophyte component much reduced an 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.

Appendix B: Hedgerow Survey Sheets

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HEDGE NO.	1
Grid Ref:	
Start:	
Finish:	
Length of hedge (m)	306

Number of standards	1
Length /50	6.12
Standards per 50m	0.16

Total gaps (m)	25
% gaps	8.2

Length of ditch (m)	0
% of total	0

Length of bank/wall (m)	360
% of total	100

Connections	Pt's
Other hedges (1)	3
Woodland (2)	0
Ponds (2)	0
TOTAL	3

Adjacent to a PRoW	No

Parallel to another hedge	No

30m samples			1	2	3
Position in hedge – from			36	138	240
Position in hedge – to (m)			66	168	270
	Hedge	St'ds			
Woody species					
Quercus robur	R	1	✓	x	x
Crataegus monogyna	R	x	✓	x	x
Ulmus agg.	A/LD	x	✓	✓	✓
Prunus spinosa	O	x	✓	✓	x
Ulex europaeus	O	x	x	✓	✓
Rosa canina agg.	R	x	x	x	x
TOTAL	6	1	4	3	2
		MEAN	3		

Woodland Plants:
Arum maculatum

Notes: 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.

Standards = Stem diam' ≥ 20cm at 1.3m high. For multi-stemmed trees: at least two stems > 15cm diameter at 1.3m high

ASSOCIATED FEATURES Use column i if adjacent to a PROW	i	ii
One or more standards per 50m		x
Less than 10% gaps		✓
Ditch for over 50% of hedge		x
Bank or wall for over 50% of hedge		✓
Connections scoring 4 points or more		x
A parallel hedge within 15m		x
Three or more woodland species		x
TOTAL		2

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	1
No. of young trees	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+

HEDGE NO.	2
Grid Ref:	
Start:	
Finish:	
Length of hedge (m)	161

Number of standards	0
Length /50	0
Standards per 50m	0

Total gaps (m)	33
% gaps	20.5

Length of ditch (m)	0
% of total	0

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

Connections	Pt's
Other hedges (1)	3
Woodland (2)	0
Ponds (2)	0
TOTAL	3

Adjacent to a PRoW	No

Parallel to another hedge	No

30m samples			1	2	3
Position in hedge – from			25	106	
Position in hedge – to (m)			55	136	
	Hedge	St'ds			
Woody species					
Crataegus monogyna	D		✓	✓	
Quercus robur	R		✓	x	
Ulmus agg.	LF		x	x	
Sambucus nigra	R		x	x	
TOTAL	4		2	1	
MEAN			1.5		

Woodland Plants:
Arum maculatum

Notes:
Hawthorn edge with ivy growing through many parts. Species poor with just a few oak and locally frequent elm at the south end. Full of rabbit holes. A large 13m gap at the north end.

Standards = Stem diam' ≥ 20cm at 1.3m high. For multi-stemmed trees: at least two stems > 15cm diameter at 1.3m high

ASSOCIATED FEATURES Use column i if adjacent to a PROW	i	ii
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
TOTAL		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	x	Old laid	x	Unmanaged	x	Cut/trimmed	✓
Track/roadside	x	Fence/wall	x	Parish boundary	x	Garden boundary	x

HEDGE RECORD AND EVALUATION SHEET — **Hedge No. 2**

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)	3	0-1m	1-2m	2-4m	>4m
3. Width	3	0-1m	1-2m	2-3m	>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]

Quercus robur (3)
Ulmus agg. (1)

No. of mature trees/pollards: 0
No. of young trees: 4

6. Length	161m				
	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)	1	≤1	1≤3	3≤5	>5

STRUCTURAL SCORE 9

	SCORE	1	2	3	4
9. Percentage gaps	2	>30%	30-10%	10-0%	No gaps
10. No. of end connections	2	1	2	3	≥4

CONNECTIVITY SCORE 4

11. HEDGE CANOPY SPECIES – Species present:

See Hedgerow Regulations survey sheet

Combined total of tree and shrub species: 4

	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	1	1-4	5-7	8-9	≥10

DIVERSITY SCORE 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)	4		1 side		2 sides

ASSOCIATED FEATURES SCORE 4

17. NOTES - Ground flora & climbers.
Stellaria media (o), *Hedera helix* (la), *Galium aparine* (o), *Holcus lanatus* (o), *Malva sylvestris* (o/lf), *Dactylis glomerata* (o)

18. Notable species present	Pop nig, Til cor, Pyr cor, Sor tor, Til pla, other	None		GRADE
		YES		
		NO		3

HEDGE NO.	3
Grid Ref:	
Start:	
Finish:	
Length of hedge (m)	146

Number of standards	0
Length /50	0
Standards per 50m	0

Total gaps (m)	2
% gaps	1.4

Length of ditch (m)	0
% of total	0

Length of bank/wall (m)	146
% of total	100

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

Adjacent to a PRoW	No

Parallel to another hedge	No

30m samples			1	2	3
Position in hedge – from			21.5	94.5	
Position in hedge – to (m)			51.5	124.5	
	Hedge	St'ds			
Woody species					
Ulmus agg.	A/LD		✓	✓	
Ulex europaeus	R		✓	x	
Crataegus monogyna	R		✓	x	
Acer campestre	R		✓	x	
Prunus spinosa	O/LD		✓	✓	
TOTAL	5		5	2	
MEAN			3.5		

Woodland Plants:
Arum maculatum

Notes:
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.

Standards = Stem diam' ≥ 20cm at 1.3m high. For multi-stemmed trees: at least two stems > 15cm diameter at 1.3m high

ASSOCIATED FEATURES Use column i if adjacent to a PROW	i	ii
One or more standards per 50m		x
Less than 10% gaps		✓
Ditch for over 50% of hedge		x
Bank or wall for over 50% of hedge		✓
Connections scoring 4 points or more		x
A parallel hedge within 15m		x
Three or more woodland species		x
TOTAL		2

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		

HEDGE RECORD AND EVALUATION SHEET					Hedge No.	3
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	
					STRUCTURAL SCORE	5
	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	
					CONNECTIVITY SCORE	5

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	
					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. Limited & largely ruderal.
Achillea millefolium *Lamium purpureum* *Hedera helix* *Galium aparine*
Rubus fruticosus agg. *Dactylis glomerata* *Urtica dioica*
Pteridium aquilinum (Frequent at west end of hedge)

18. Notable species present	Pop nig, Til cor, Pyr cor, Sor tor, Til pla, other			GRADE
		YES		
		NO		-3

HEDGE NO.	4
Grid Ref:	
Start:	
Finish:	
Length of hedge (m)	44

Number of standards	0
Length /50	0
Standards per 50m	0

Total gaps (m)	0
% gaps	0

Length of ditch (m)	0
% of total	0

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

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

Adjacent to a PRoW	No

Parallel to another hedge	No

30m samples			1	2	3
Position in hedge – from			7		
Position in hedge – to (m)			37		
	Hedge	St'ds			
Woody species					
Prunus spinosa	A		✓		
Ulmus agg.	A		✓		
Crataegus monogyna	R		✓		
TOTAL	3		3		
MEAN			3		

Woodland Plants:
Arum maculatum

Notes: South side cannot be accessed for cutting because of the bund. Blackthorn now suckering on this inaccessible side.
Dominated by elm and blackthorn.

Standards = Stem diam' ≥ 20cm at 1.3m high. For multi-stemmed trees: at least two stems > 15cm diameter at 1.3m high

ASSOCIATED FEATURES Use column i if adjacent to a PROW	i	ii
One or more standards per 50m		x
Less than 10% gaps		✓
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
TOTAL		1

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	

HEDGE RECORD AND EVALUATION SHEET — **Hedge No. 4**

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

STRUCTURAL SCORE 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

CONNECTIVITY SCORE 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 exotic 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

DIVERSITY SCORE 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

ASSOCIATED FEATURES SCORE 2

17. NOTES - Ground flora & climbers.
Pteridium aquilinum (LA) *Urtica dioica* *Galium aparine*
Rubus fruticosus agg. *Hedera helix* (A)

18. Notable species present	Pop nig, Til cor, Pyr cor, Sor tor, Til pla, other		GRADE
		YES	
		NO	3

HEDGE NO.	**5**
Grid Ref:	
Start:	
Finish:	
Length of hedge (m)	166

Number of standards	2
Length /50	3.32
Standards per 50m	0.60

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

Parallel to another hedge	No

30m samples			1	2	3
Position in hedge – from			26.5	109.5	
Position in hedge – to (m)			56.5	139.5	
	Hedge	St'ds			
Woody species					
Sambucus nigra	R		x	x	
Acer campestre	R		x	x	
Ulmus agg.	LF		x	x	
Cornus sanguinea	R		x	x	
Corylus avellana	A/LD		✓	✓	
Ilex aquifolium	R		x	✓	
Quercus robur	R	2	x	✓	
Rosa canina agg.	R		x	✓	
TOTAL	8	2	1	4	
MEAN			2.5		

Woodland Plants:
Arum maculatum *Mercurialis perennis*

Notes: Species rich but largely dominated by hazel.
Ivy very abundant.
Evidence of previous dormice survey work (old survey tubes)

Standards = Stem diam' ≥ 20cm at 1.3m high. For multi-stemmed trees: at least two stems > 15cm diameter at 1.3m high

ASSOCIATED FEATURES Use column i if adjacent to a PROW	**i**	**ii**
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
TOTAL		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	Yes	
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	4
2. Height (exclude bank)	3	0-1m	1-2m	2-4m	>4m
3. Width	3	0-1m	1-2m	2-3m	>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 (*Quercus robur*) Young tree (*Ulmus agg.*)

No. of mature trees/pollards 2
No. of young trees 1

6. Length	166m				
	SCORE	1	2	3	4
7. Mature standards/100m (score = 0 if none present)		≤1	1≤3	3≤5	>5
8. Young standards/100m (score = 0 if none present)		≤1	1≤3	3≤5	>5

STRUCTURAL SCORE 11

	SCORE	1	2	3	4
9. Percentage gaps	2	>30%	30-10%	10-0%	No gaps
10. No. of end connections	0	1	2	3	≥4

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	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	3	1-4	5-7	8-9	≥10

DIVERSITY SCORE 5

	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)	4		1 side		2 sides

ASSOCIATED FEATURES SCORE 4

17. NOTES - Ground flora & climbers.
Galium aparine (F) *Glechoma hederacea* (LF) *Urtica dioica* (LA)
Hedera helix (LF/LA)

18. Notable species present	Pop nig, Til cor, Pyr cor, Sor tor, Til pla, other			**GRADE**
		YES		
		NO		3

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- Site Boundary
- Search Area
- Site of Special Scientific Interest (SSSI)
- RAMSAR Sites
- County Wildlife Site, With Reference Number
- Special Protected Area (SPA)
- Ancient Woodland Inventory

0 500 1000 m

Gladman Developments Ltd.(Gladman)
Land off Duke's Park
Woodbridge

Consultation Results Plan -Sites

N

NJW/ AL 17/11/2015

Figure 1 **6106-E-1**

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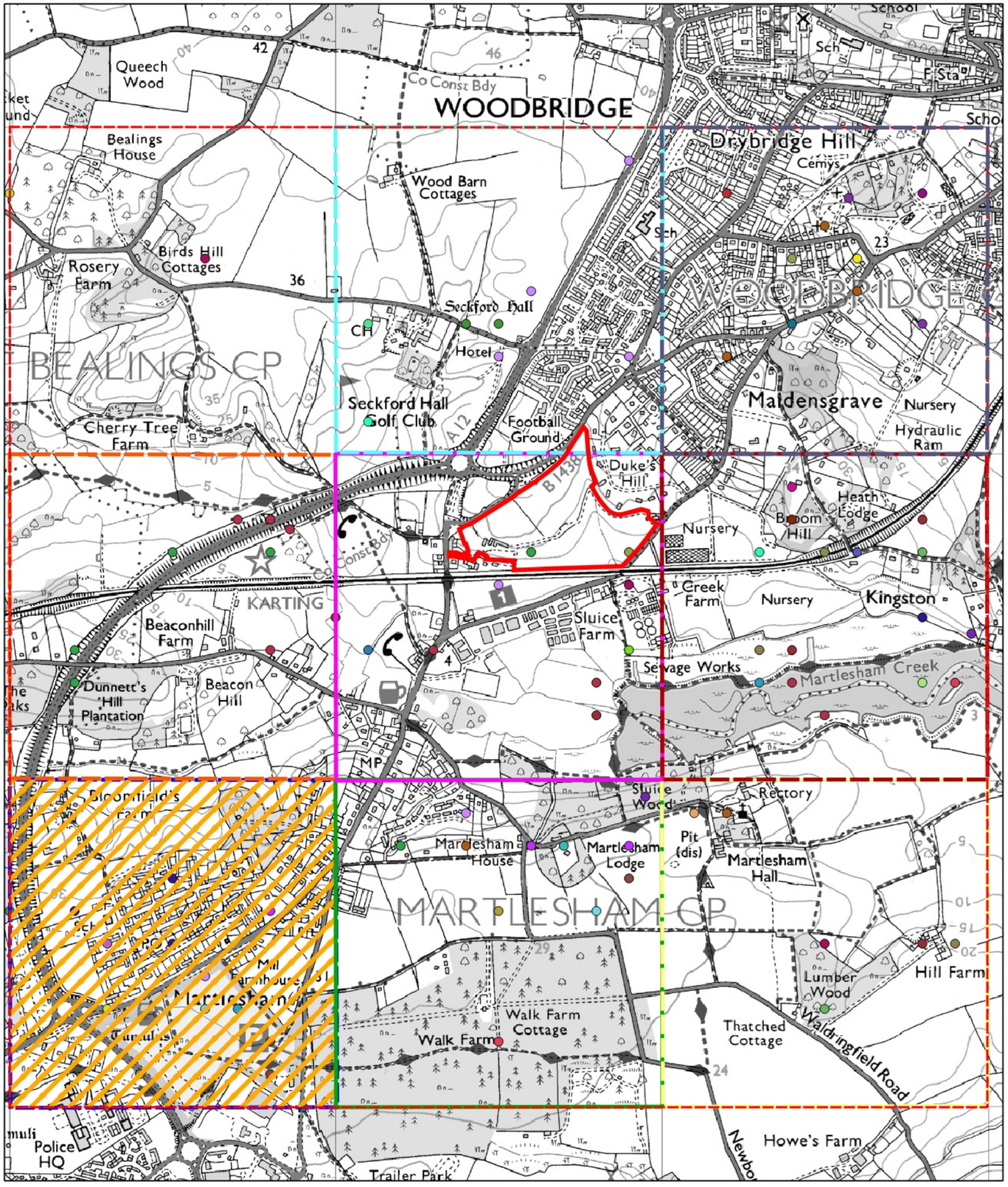
J:\6100\6106\ECO\Eco App\ Designated Sites Consultation Data Plan



- Site Boundary
- Search Area
- Adder
- Barn Owl
- Brown Hare
- Brown Long-eared Bat
- Catillaria 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
Lasioglossum (Evylaeus) malachurum
Sphecodes 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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0 500 1000 m

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Land off Duke's Park
Woodbridge

Protected and Notable Species Plan

SJN /AL 7/11/2015

Figure 2 **6106-E-02**

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KEY

- Site Boundary
- Scrub Dense-continuous
- Scrub - scattered
- Broadleaved Tree (with Ref.)
- 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.)

0 50 100 m

rev	date	description	drn	chkd
-	06.11.2015	First Issue	AL	AL

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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

rev	date	description	drn	chkd
-	06.11.2015	First Issue	AL	AL

masterplanning
environmental assessment
landscape design
urban design
ecology
architecture
arboriculture

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Woodbridge

Waterbody Plan

N

Figure 4 **6106-E-04** 6/11/2015

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Appendix 7.2:
Reptile Survey Report

Gladman Developments Ltd.

Land off Duke's Park, Woodbridge

Reptile Survey Report

November 2015

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FPCR Environment and Design Ltd
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Rev	Issue Status	Prepared / Date	Approved/Date
-	Draft 1	TAE / 29.01.2015	RJS / 26.02.2015
A	Final	ED / 04.11.2015	AL / 04.11.2015

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CONTENTS

TABLES

FIGURES

APPENDIX

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1.0 INTRODUCTION

1.1 Gladman Developments Ltd. commissioned FPCR Environment and Design Ltd. to undertake a preliminary ecological appraisal of an area of land 12.67ha in size at Woodbridge, Suffolk. The objective of the study was to determine habitats and species present within the site and to assess their ecological value and whether they represented a potential constraint to a proposed application for outline planning permission for residential development.

1.2 The appraisal involved an initial extended Phase 1 Habitat Survey in March 2014 to determine habitats and species present within the site and to make an initial assessment of their ecological value and where appropriate, to identify the need for additional surveys.

1.3 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. The northern part sits on a higher elevation with a vegetated bank separating this from the southern part. There is a single internal, species-poor hedgerow separating two fields in the northern half; the only other hedgerows are along the northern boundary and along part of the east boundary. Two mature trees were present within the site with a small number of semi-mature standards scattered across the site boundaries. There is no standing water habitat present, but a small ditch with a shallow flow partially bisects the southeast corner.

1.4 There was no evidence of any reptiles during the initial 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;
- 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. Railway embankments are known to be suitable habitat for reptiles, particularly common lizard which are present in Suffolk[1].

1.5 It was therefore considered possible that reptiles could be utilising the site and reptile surveys were recommended and subsequently commissioned. This report provides details of the survey.

[1] Suffolk Amphibian and Reptile Group. *Reptiles – Common/Viviparous Lizard Zootoca vivipara.* [webpage] Available at: http://www.sarg.org.uk/index.php?page=identification [Accessed 02/02/2015].

2.0 LEGISLATIVE AND PLANNING POLICY CONTEXT

2.1 All common reptile species, including slow worm *Anguis fragilis*, common lizard *Zootoca vivipara*, adder *Viper berus* and grass snake *Natrix natrix*, are partially protected under Sections 9(1) and 9(5) of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This legislation protects these animals from:

- Intentional killing and injury; and
- Selling, offering for sale, possessing or transporting for the purpose of sale or publishing advertisements to buy or sell a protected species.

2.2 This partial protection does not directly protect the habitat of these reptile species; however where these animals are present on land that is to be affected by development, the implications of the legislation are that providing that killing can reasonably be avoided, an operation is legal. Guidance provided by Natural England[2] and the Amphibian and Reptile Groups of the UK[3] recommends that this should be achieved by ensuring that:

- The animals must be protected from injury or killing;
- Mitigation is provided to maintain the conservation status of the species; and
- Following operations the population should be monitored.

2.3 All common reptile species are included on the list of species which are of principal importance for the conservation of biodiversity in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act. The S41 list is used to guide decision-makers, including local planning authorities, in implementing their duty under section 40 of the Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

2.4 The National Planning Policy Framework (NPPF)[4] sets out principles which ensure that development will not result in significant harm to biodiversity and geological conservation interests and wherever possible, alternatives are sought. Where proposals cannot reasonably be located elsewhere, the NPPF considers that adequate mitigation measures should be put in place, and where mitigation is not sufficiently adequate to prevent significant harm, compensation measures should be sought. Networks of habitats are viewed by the NPPF as a valuable resource, linking sites of importance and providing routes or stepping stones for migration, dispersal and genetic exchange of species in the wider context. Such networks should be protected from development and where possible, strengthened or integrated within it.

[2] English Nature. (2004). *Reptiles: guidelines for developers.* [on-line]. Peterborough: Natural England. Available from:.http://publications.naturalengland.org.uk/publication/76006?category=31018 [Accessed 02/02/2015]

[3] Amphibian and Reptile Group (no date). *Evaluating local mitigation/translocation programmes: Maintaining best practice and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGs)*.

[4] Department for Communities and Local Government. (2012). *National Planning Policy Framework.* [Online]. London: Department for Communities and Local Government. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf [Accessed 02/02/2015]

3.0 METHODOLOGY

Desktop study

3.1 A desk study was undertaken as part of the initial Ecological Appraisal for the proposed development. As part of this process, Suffolk Biological Records Centre was contacted for existing records of reptiles within 1km of the site boundary.

Field Survey

3.2 A strategic reptile presence / absence survey was undertaken at locations identified as offering potential habitat within the site. The survey was undertaken based on methodology detailed in the Herpetofauna Workers Manual[5] and the Froglife Advice Sheet 10[6]. Methods involved a search for basking reptiles on/under naturally occurring refugia, and strategically positioned artificial refugia. The artificial refugia were placed in locations that offered the most suitable habitat for common reptiles; i.e. areas forming the junction between vegetation of different types and height, areas which formed a natural sun-trap, and areas of bare ground/short vegetation close to more dense stands of vegetation.

3.3 A total of 40 refugia were set out on 4th August 2014; their indicative location and numbers are shown in Figure 1. They were left undisturbed for over two weeks to enable any reptiles present to become accustomed to them. Thereafter, a series of 7 survey checks were undertaken, when suitable weather conditions existed, between 21st August and 30th September 2014, by a suitably experienced ecologist. The refugia were left undisturbed for a period of at least 1 day between each survey check.

3.4 The prevailing weather conditions during the survey checks are provided in Table 1. These include, wind, cloud cover, ambient temperature and any other notable weather.

Table 1: Date and Weather Conditions during Reptile Surveys

Survey	Date	Weather conditions 2 days prior to survey	Weather conditions of the night prior to survey	Time	Temp. (max/min) (°C)	Cloud cover / Rain/ Wind
1	21/08/2014	Sun with cloud/ no wind/ no rain/ 22-11°C	Sun with cloud/ no wind/ no rain/ 22-11°C	07:48	13.5	Sun/ wet grass from dew/ wind 1-3mph
2	04/09/2014	Sun with cloud/ wind 1-3mph/ no rain/ 19- 14°C	Sun with cloud/ wind 1-3mph/ no rain/ 19-16°C	07:00	16.1	Sun/ no rain/ no wind

5 Gent, T. & Gibson, S. (Eds.) (2012). *Herptofauna Workers' Manual*. Exeter: Pelagic Publishing

6 Froglife. (1999). *Froglife Advice Sheet 10: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation.* Froglife

3	09/09/2014	Sun with cloud and morning fog/ no wind/ no rain/ 19-11°C	Clear weather/ wind 6mph/ 17.2-12.2°C	17:15	18.7 / 16.6	No cloud/ no rain/
4	11/09/2014	Sun with partial cloud/ no wind/ no rain/ 20- 10°C	Sun with partial cloud/ no wind/ no rain/ 18-9°C	07:00	16 / 15.5	Cloudy/ wet ground/ wind 1-3mph
5	19/09/2014	Sun with partial cloud/ 9mph wind/ 21-16°C	Sun with no cloud/ 10mph wind	10:00	19 / 17.5	Light cloud/ no rain/ no wind
6	24/09/2014	Sunny with cloud/ wind 10-6 mph/ 16°C	Sunny with cloud/ wind 10mph	12:30	16 / 15	Sun/ cloud
7	30/09/2014	Sun with overcast to scattered cloud/ 19-15°C	Cloudy/ 16-14°C	09:00	18 / 15	Sun/ partial cloud/ no wind

3.5 The surveys also followed the guidelines recommendations by:

- Using roofing felt (0.5m^2) as artificial refugia, with a black upper side;
- Approaching refugia from downwind, avoiding casting a shadow, and with care, so as to not disturb basking animals when checking;
- Lifting and replacing tins, to check for the presence of reptiles underneath in hot weather was undertaken with care, to avoid potential harm to any animals underneath.

3.6 In addition to checking the artificial refugia, on each survey occasion the south west corner of the site was searched for reptiles. The disturbed nature of this area and the large volume of general debris present, were such that it was considered that if reptiles were utilising this area they would be using existing features for basking and sheltering. Consequently, any reptiles within this area would be unlikely to use additional refugia. On this basis it was considered that this particular part of the site could be more accurately surveyed by careful searching of existing artificial refugia.

3.7 Reptile populations were assessed according to the population level criteria stated in the *Froglife Advice Sheet 10*[6]. On this basis populations of different reptile species are divided into three population categories based on the total number of animals observed during individual survey occasions (Table 2).

Table 2: Key Reptile Site Survey Assessment Categories (*Froglife Advice Sheet 10*[6])

Species	Low Population (No. of individuals per hectare)	Good Population (No. of individuals per hectare)	Exceptional Population (No. of individuals per hectare)
Adder	<5	5-10	>10
Common lizard	<5	5-20	>20
Grass snake	<5	5-10	>10
Slow worm	<5	5-20	>20

Survey Limitations

3.8 All surveys were carried out during suitable conditions and the results are therefore considered sufficient to adequately assess the presence or absence of reptiles and their population size (if present).

4.0 RESULTS

Desk Study

4.1 There were no statutory or non-statutory sites within the search area that had been designated as a result of the reptile populations they support.

4.2 Suffolk Biological Records Centre provided three records for reptiles from within the local area, as detailed in Table 3.

Table 3: Reptile Records within 1km of the Site Provided by Suffolk Biological Records Centre

Species	Date	Grid Ref	Distance From The Site	Number
Slow-worm *Anguis fragilis*	2012	TM263477	400m east	1 Adult Female
	2005	TM251481	450m northwest	Unspecified
Common lizard *Zootoca vivipara*	2007	TM263473	550m south	Unspecified

Field Survey

4.3 Table 4 below provides a summary of results for all reptile surveys undertaken. Appendix 1 provides full details of reptile survey results, including the locations within the site of individuals observed.

Table 4: Reptile Survey Results

Survey	Date	Common Lizard	Grass Snake	Adder	Slow Worm
1	21/08/2014	0	0	0	0
2	04/09/2014	1	0	0	0
3	09/09/2014	5	0	0	0
4	11/09/2014	5	0	0	0
5	19/09/2014	5	0	0	0
6	24/09/2014	14	0	0	0
7	30/09/2014	2	0	0	0

4.4 Only one species of reptile, common lizard, was identified. The maximum count was 14 (12 adults and 2 juveniles) on a single survey visit, which equates to a 'good' population based on current guidance[6] for assessment of population size (Table 2).

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 Common lizard were recorded on six of the seven survey occasions (Table 4); mainly along the 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 on the east side of the site (See Appendix A and Figure 1).

5.2 In the absence of mitigation, construction operations would have the potential to result in the accidental killing or injuring of common lizard. Therefore, in accordance with the legal protection that this species is afforded, the following mitigation strategy is provided to demonstrate that killing or injuring of lizards can be reasonably avoided. Furthermore, to accord with best practice guidance3 there is a need to ensure that the current conservation status of the population is maintained, as such, the implementation of a post-construction monitoring programme is also recommended.

Reptile Mitigation Strategy

5.3 The current development framework plan indicates that the south facing bank and internal hedgerow will be lost as part of the development proposals. In addition, a proposed main access point and a convenience store will result in a loss and degradation of suitable habitat where lizards were recorded on the north boundary. This loss will be compensated by the creation of green infrastructure within the new development, which will provide habitat connectivity within the development and into surrounding land.

5.4 The main element of the mitigation strategy should be the translocation of lizards out of any area where they might be harmed. This will be achieved by a process of trapping and then translocation to an on-site receptor site located within the eastern extent of the site, which would be suitably fenced during the construction period to prevent the migration of any lizards back into the site during works. This process would be undertaken using the following methodology.

5.5 Trapping would continue until a reasonable capture effort has been achieved. Given the recorded population size it is considered that this would require approximately 60 suitable days of trapping. Translocation would cease when:

a) Within 60 days of trapping, common lizards have been shown to be absent from the entire site for a full 5 clear days of suitable weather, or;

b) If following 60 days of trapping a reasonable rate of capture has been achieved, subject to approval by Suffolk Coastal District Council.

5.6 Following the trapping and translocation, a hand and destructive search would be undertaken of appropriate site areas to ensure that the site is clear of lizards.

5.7 On completion of the development, the temporary fencing around the receptor site will be removed to enable the lizards to move back into the enhanced site areas. All works would be undertaken under the supervision of a suitably qualified ecologist.

5.8 To support the translocated population, habitat enhancements would be provided in the receptor site so that it provides optimum habitat conditions for common lizard both during and after the development work. Enhancements would include planting native scrub species, the creation of hibernacula and the subsequent long-term management to ensure the establishment of a tussocky sward. The topography of the area would be modelled so that it provides areas of south

facing banks/slopes which act as sun-traps to provide suitable basking conditions for the lizards; an element of bare ground would also be included within these sun-trap areas. In addition some specific works to make the rest of the green infrastructure suitable for lizards should also be undertaken.

5.9 The recommended enhancement to the receptor area, in combination with the habitat that the proposed development green infrastructure will provide, will compensate for the loss of existing suitable habitat for common lizard. This should ensure that the current conservation status of the recorded population is maintained. Implementation post development monitoring of the population for two years will provide the data to confirm this.

6.0 NON-TECHNICAL SUMMARY

- 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 to the south of Ipswich Road and east of Top Street, Woodbridge. This was associated with a proposed application for outline planning permission for residential development.
- A Phase 1 Habitat Survey which formed part of the ecological appraisal identified most habitats present on site generally lacked the structural diversity required by most reptiles, exceptions were:
    - Land which forms the embankment for Top Street and Ipswich Road, including the northern site boundary;
    - the south facing boundary separating the northern and southern areas 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;
    - Areas of bare ground and disused rabbit holes, particularly along the northern boundary of the site and the central bank;
    - The railway line which is immediately adjacent to the southern boundary of the site.
- As a result of the habitats identified, a specific survey for reptiles was recommended and subsequently commissioned.
- The reptile survey was undertaken during August and September 2014. The survey followed best practice methods and involved placing out a total of 40 artificial refugia and subsequently checking these on 7 occasions when weather conditions were appropriate. Existing refugia comprising general waste in the disturbed areas of the site were also checked.
- A desk top study was undertaken as part of the survey. This confirmed that slow-worm and common lizard had been recorded within the local area over the period 2005-07.
- The field survey identified a 'good'[6] population of common lizard (peak count 12 adults and 2 juveniles on a single survey occasion), no other species of reptile were recorded.
- It is concluded that the translocation of the on-site population to a receptor area which has been enhanced for common lizard will be necessary. This can be achieved via a trapping exercise during suitable weather conditions of approximately 60 days, subject to capture rate. A hand and destructive search will then be undertaken to ensure that the site is cleared of lizards. All works should be undertaken under the supervision of a suitably qualified ecologist. Once this is complete and development works cease, reptiles should be allowed to move back into the site.
- Management of the receptor area and the wider green infrastructure post development, should include objectives to provide suitable habitat for common lizard.
- It is considered that as a result of mitigation and enhancement proposals the favourable conservation status of reptiles will be maintained.

APPENDIX A

Table 1 Total Number of Individual Common Lizard *Zootoca vivipara* Observed Per Refugia

Refugia Reference Number	Survey Occasion (DD/MM/YY)						
	21/08/14	**04/09/14**	**09/09/14**	**11/09/14**	**19/09/14**	**24/09/14**	**30/09/14**
1			1M 1F 1J	1M 3F	1F	4F	
2					1F	1M	
11			1M		2F 1M	2F	1F
12						1M	
17						1M 2F	
20			1M	1 F			
21						1M	
28						1J	
30						1J	1M
35		1 Unk					
Total	**0**	**1**	**5**	**5**	**5**	**14**	**2**

KEY: M= Adult Male; F= Adult Female; J= Juvenile; Unk= Unknown

Study Area

Reptile Refugia Location (with Reference)

FPCR Environment and Desgin Ltd, Lockington Hall, Derby, DE74 2RH ▪ t:01509 672 772 ▪ f:01509 674 565 ▪ e: mail.fpcr.co.uk ▪ w: www.fpcr.co.uk ▪
masterplanning ▪ environmental assessment ▪ landscape design ▪ ecology ▪ architecture ▪ arboriculture ▪

J:\6100\6106\QGIS\Plans\6106-E-01 Reptile Refugia Plan.qgs

Gladman Developments Ltd.
Land off Duke's Park, Woodbridge

REPTILE REFUGIA PLAN

N

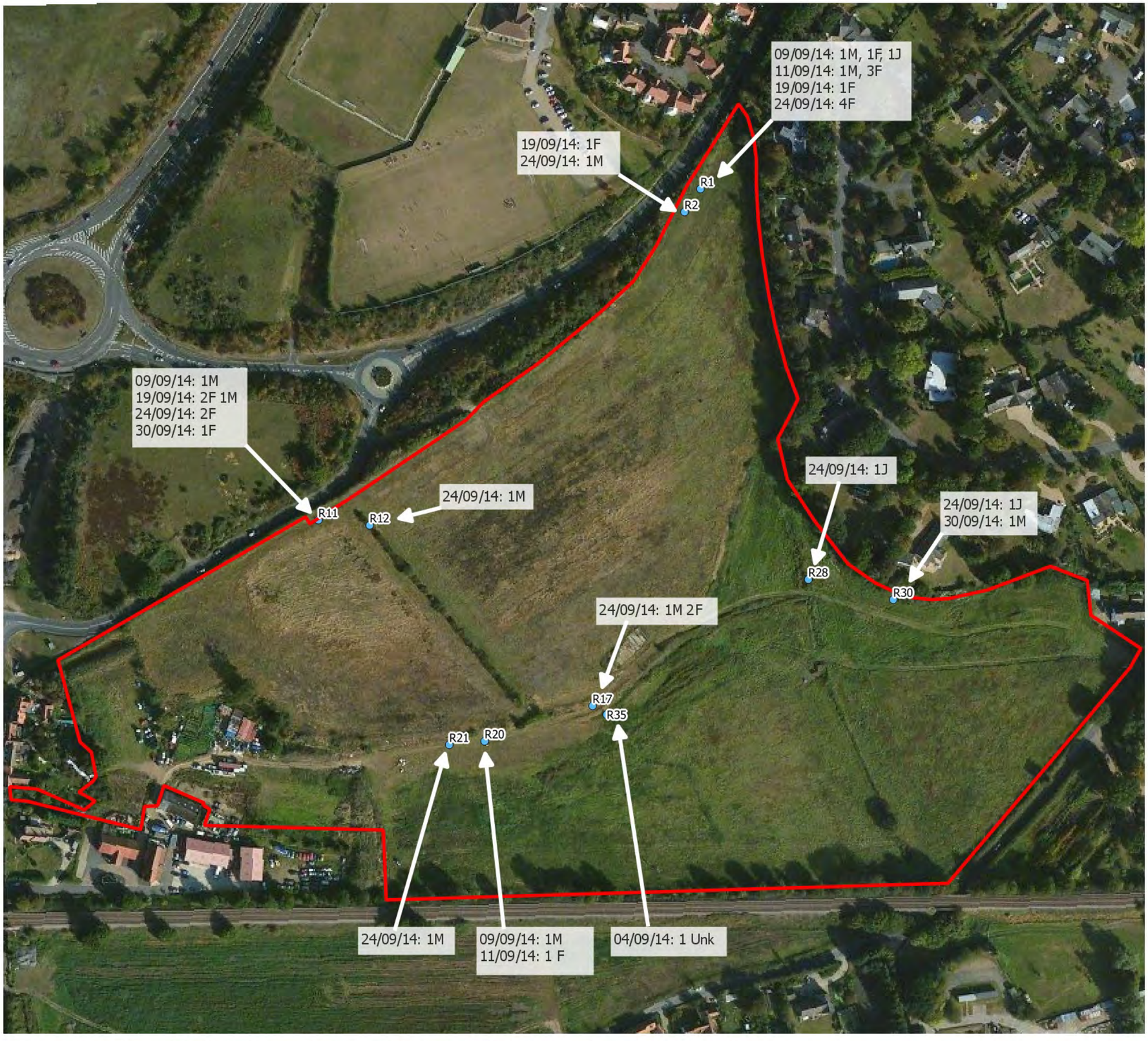
Scale: 1:2,225

LG / TAE / NJL

6/11/2015

Figure 1

6106-E-01



Study Area

Reptile Tin Locations (with Reference)

M= Male
F= Female
J= Juvenile
Unk= Unknown

FPCR Environment and Desgin Ltd, Lockington Hall, Derby, DE74 2RH ▪ t:01509 672 772 ▪ f:01509 674 565 ▪ e: mail.fpcr.co.uk ▪ w: www.fpcr.co.uk ▪
masterplanning ▪ environmental assessment ▪ landscape design ▪ ecology ▪ architecture ▪ arboriculture ▪

J:\6100\6106\QGIS\Plans\6106-E-01 Location of Recorded Lizards.qgs

Gladman Developments Ltd.
Land off Duke's Park, Woodbridge

LOCATION OF RECORDED LIZARDS

Scale: 1:2,240 | LG / TAE / NJL | 6/11/2015

Figure 2 | **6106-E-01**

Appendix 7.3:
Habitat Regulations Assessment Information

GLADMAN DEVELOPMENTS LTD

DRAFT

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
6512.IHRA.dv1

CONTENTS

PLANS

APPENDICES

1. INTRODUCTION

1.1. Background

1.1.1. Ecology Solutions was commissioned by Gladman Developments Ltd to undertake ecological assessment work pursuant to the production of documentation in support of a planning application to be submitted in respect of Land off Duke's Park, Woodbridge, Suffolk.

1.1.2. Specifically, Ecology Solutions were instructed to assess implications of the Development Proposals on a nearby designated site of European importance, namely the Deben Estuary Special Protection Area (SPA) and Ramsar site, located approximately 390m from the Application Site at its closest point (see Plan ECO1).

1.1.3. The findings of this assessment work are set out within this 'Information to enable a Habitats Regulations Assessment' document, such that the competent authority (in this instance Suffolk Coastal district Council) has all the necessary information before it in order to carry out it's duties in considering the application in line with relevant planning policy and legislation, including specifically The Conservation of Habitats and Species Regulations 2010 (hereinafter referred to as the Habitats Regulations).

1.1.4. Development Proposals for the Application Site are for the provision of residential development (up to 215 units) along with a convenience store associated infrastructure, public open space and landscaping.

1.2. Purpose of this Report

1.2.1. FPCR Environment and Design Ltd produced a Draft "Habitats Regulations Assessment" (August 2014) in connection with the Development Proposals. This was produced in the light of Natural England's advice (letter of 23rd July 2014) provided through the Discretionary Advice Service (DAS). Following a review of the Draft Habitats Regulations Assessment, Natural England stated (by way of letter 1st May 2015) that it "is currently not satisfied, on the basis of the objective information which has so far been provided, that it can be excluded that the proposed plan or project will have a significant effect on the Deben Estuary SPA/Ramsar, either individually or in combination with other plans or projects.

1.2.2. This report specifically assesses the potential significant effects of the Development Proposals on the nearby SPA/Ramsar site, expanding on the original work undertaken by FPCR in order to fully address the concerns of Natural England and ensure that the Competent Authority has all necessary information before it to discharge its legal obligations in granting a consent.

1.2.3. Within this document specific regard is had to the test under Regulation 61(1) of the Habitats Regulations. Regulation 61(1) is described and considered further in Section 2 of this document.

1.2.4. The proximity of the Application Site to the SPA/Ramsar site is described in detail at Section 3 of this report and is also shown on Plan ECO1.

1.2.5. As part of this assessment, professional judgement has been applied in some instances in order to interpret information. Ecology Solutions is a member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and the Institute of Environmental Management and Assessment and its' professional ecologists are qualified to make such judgements where appropriate.

1.2.6. This document assesses the likely significant effects of the Development Proposals associated with the Application Site as a whole, both alone and in combination with other plans / projects.

1.2.7. It is the opinion of Ecology Solutions, following appropriate and detailed assessment, that the Development Proposals would not result in a significant adverse effect on the SPA/Ramsar site either alone or in combination with other plans or projects, and that as such the tests contained at Regulation 61(1) of the Habitats Regulations would not be failed and that there is no need therefore to undertake an Appropriate Assessment.

1.3. Application Site Characteristics

1.3.1. The Application Site is approximately 12.89ha in size and is located to the south west of the existing settlement of Woodbridge, beyond Sandy Lane. It is bounded by the B1438 (Ipswich Road) and Top Street to the north, existing residential development and Top Street to the west, and the East Coast Railway line to the south.

1.3.2. The Application Site itself comprises neutral grassland, rabbit grazed ephemeral/short perennial vegetation, hedgerows scattered mature trees, ruderal vegetation and a drainage ditch.

2. LEGISLATIVE AND PLANNING POLICY BACKGROUND

Legislation and relevant case law

2.1. The proximity of the Application Site to the nearby designated site of European/international importance, namely the Deben Estuary SPA / Ramsar site means that the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (Habitats Directive) and the EC Directive on Wild Birds (the Birds Directive) are relevant in this instance. These two Directives are transposed in UK legislation through the Habitats Regulations (2010).

2.2. The Deben Estuary is also classified as a Ramsar site. The UK is a signatory to the Convention on Wetlands of International Importance Especially as Wildfowl Habitat 1971, commonly known as the Ramsar Convention after the town in which it was signed. Parties to the Ramsar Convention are obliged to designate particular sites as Wetlands of International Importance. The obligations imposed by the Convention are in themselves not particularly strong, in that they require the promotion and encouragement of the stated aims, rather than any specific action. However, as a matter of policy, Ramsar sites receive the same protection as designated SPAs and Special Areas of Conservation (SACs). The procedures applicable to European sites are therefore to be applied to Ramsar sites, even though these are not European sites as a matter of law.

2.3. The relevant Directives and UK legislation are discussed below.

Habitats and Birds Directives

2.4. Under the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, commonly referred to as the Habitats Directive (Council Directive 92/43/EEC), Member States are required to take special measures to maintain the distribution and abundance of certain priority habitats and species (listed in Annexes I and II of the Directive). In particular each Member State is required to designate the most suitable sites as SACs. All such SACs will form part of the Natura 2000 network under article 3(1) of the Habitats Directive.

2.5. Article 2(3) sets out that member states have a duty, in exercising their obligations under the Habitats Directive to:

> ".. take account of economic, social and cultural requirements and local characteristics."

2.6. Under the EC Directive on Wild Birds (the Birds Directive) (Council Directive 2009/147/EEC, previously 79/409/EEC), Member States are required to take special measures to conserve the habitats of certain rare species of birds (listed in Annex I of the Directive) and regularly occurring migratory birds. In particular each Member State is required to classify the most suitable areas of such habitats as SPAs. This is designed to protect wild birds, and to provide sufficient diversity of habitats for all species so as to maintain populations at an ecologically sound level. All Bird Directive

SPAs will also be part of the Natura 2000 network under article 3(1) of the Habitats Directive.

2.7. Thus there is an obligation under the Habitats Directive and the Birds Directive for member states to designate sites before turning to measures for their protection.

2.8. The protection afforded to SPAs is delivered through Article 6 of the Habitats Directive. Article 6(2) requires member states to take appropriate steps to avoid the deterioration of natural habitats and disturbance of species for which the sites have been designated, in so far as the disturbance could be significant in relation to the objectives of the Directive. Article 6(3) and Article 6(4) require that a plan or project not directly connected with the management of the site, but likely to have a significant effect upon it, either individually or in combination with other plans or projects, must be subject to an appropriate assessment of its implications on the site, in view of the sites conservation objectives.

2.9. Having undertaken an appropriate assessment, the competent authority may agree to a plan or project where it can be concluded that it will not adversely affect the integrity of the site. In light of a negative assessment on the implications for the integrity of the site, Article 6(4) provides that the plan or project may still proceed where it can be demonstrated that there are no alternatives and there are imperative reasons of over-riding public interest as to why it must proceed. In the event that a plan or project is to proceed on the basis of imperative reasons of over-riding public interest, by direction of Article 6(4), compensatory measures must be put in place to ensure that the overall coherence of the Natura 2000 network is protected.

The Conservation of Habitats and Species Regulations 2010

2.10. The Conservation of Habitats and Species Regulations 2010, commonly referred to as the Habitats Regulations, transpose the requirements of the Habitats Directive and Birds Directive into UK legislation. The Habitats Regulations aim to protect a network of sites in the UK that have rare or important habitats and species in order to safeguard biodiversity. Note that the Conservation of Habitats and Species Regulations 2010 replace the Conservation (Natural Habitats &c.) Regulations 1994.

2.11. Under the Habitats Regulations, Competent Authorities have a duty to ensure that all the activities they regulate have no adverse effect on the integrity of any of the Natura 2000 sites. Regulation 61 of the Habitats Regulations requires that:

> "61(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for a plan or project, which:-
>
> (a) is likely to have a significant effect on a European site or a European offshore marine site in Great Britain (either alone or in combination with other plans or projects) and

(b) is not directly connected with or necessary for the management of the site,

shall make an appropriate assessment of the implications for the site in view of that site's conservation objectives.

61(3) The competent authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority may specify.

61(5) In the light of the conclusions of the assessment, and subject to regulation 62, the authority shall agree to a plan or project only after having ascertained that it will not adversely affect the integrity of the European site.

61(6) In considering whether a plan or project will adversely affect the integrity of the site, the authority shall have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which they propose that the consent, permission or other authorisation should be given."

2.12. Regulation 61 of the Habitats Regulations therefore sets out a two stage process. The first test is to determine whether the plan / project is likely to have a significant effect on the European site, the second test (if applicable) is to determine whether the plan / project will affect the integrity of the European site.

2.13. Some key concepts of the Habitats Directive and Habitats Regulations have been clarified through case law. The most pertinent cases in relation to Development Proposals are the "Waddenzee Judgment", the "Dilley Lane Decision" and the Sweetman Case. These are discussed below.

Waddenzee Judgement

2.14. In the 'Waddenzee' case the European Court of Justice considered the trigger for 'Appropriate Assessment'. It decided that an appropriate assessment is required for a plan or project where there is a probability or a risk that it will have a significant effect on the SPA. The Judgement states [at paragraph 3(a)] that:

"…any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects."

2.15. Hence the need for an appropriate assessment should be determined on a precautionary basis.

2.16. The Judgement gives clarity that the test of 'likely significant effect' should also be undertaken in view of the European sites conservation objectives. It is stated at paragraph 3(b)] that:

> "where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site."

2.17. Paragraph 4 of the Judgement emphasises the requirement for the appropriate assessment to rely on objective scientific information:

> "…an appropriate assessment…implies that, prior to its approval, all the aspects of the plan or project which can, by themselves or in combination with other plans or projects, affect the site's conservation objectives must be identified in the light of the best scientific knowledge in the field. The competent national authorities, taking account of the appropriate assessment of the implications…for the site concerned in the light of the site's conservation objectives, are to authorise such an activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects."

Dilly Lane Decision

2.18. The Secretary of State's decision to allow an appeal in relation to applications for a total of 170 new homes on a greenfield site off Dilly Lane, Hartley Witney was challenged in High Court by Hart District Council. The legal challenge was made on the grounds that the Secretary of State had errored in departing from her Inspector's conclusions as to the effects on the Thames Basin Heaths SPA. A key issue for the case was whether mitigation measures should be disregarded when assessing whether the project would have a significant effect on the SPA. Mr Justice Sullivan ruled in favour of the Secretary of State after concluding that there was no absolute legal rule that mitigation measures should be disregarded in assessing whether the new homes would have significant effect on the SPA. Mr Justice Sullivan states at paragraph 55 of his judgement:

> "The competent authority is not considering the likely effect of some hypothetical project in the abstract. The exercise is a practical one which requires the competent authority to consider the likely effect of the particular project for which permission is being sought. If certain features (to use a neutral term) have been incorporated into that project, there is no sensible reason why those features should be ignored at the initial, screening, stage merely because they have been incorporated into the project in order to avoid, or mitigate, any likely effect on the SPA."

2.19. As such, it is right and proper that mitigation or avoidance measures, which form a feature of a plan / project should be viewed as integral to the plan / project and not excluded when considering the likely significance test at Regulation 61(1).

Sweetman Case

2.20. Further guidance in relation to the consideration of impacts in the light of the Habitats Regulations is provided in the Sweetman case. The case as set out by the Advocate General considered in detail the test for likely significant effect in paragraphs 50 and 51*:*

> *"50. The test which that expert assessment must determine is whether the plan or project in question has 'an adverse effect on the integrity of the site', since that is the basis on which the competent national authorities must reach their decision. The threshold at this (the second) stage is noticeably higher than that laid down at the first stage. That is because the question (to use more simple terminology) is not 'should we bother to check' (the question at the first stage) but rather 'what will happen to the site if this plan or project goes ahead; and is that consistent with "maintaining or restoring the favourable conservation status" of the habitat or species concerned'…*
>
> *51. It is plan, however, that the threshold laid down at this stage of Article 6(3) may not be set too high, since the assessment must be undertaken having rigorous regard to the precautionary principle. That principle applies where there is uncertainty as to the existence or extent of risks. The competent national authorities may grant authorisation to a plan or project only if they are convinced that it will not adversely affect the integrity of the site concerned. If doubt remains as to the absence of adverse effects, they must refuse authorisation."*

2.21. The Court of Justice of the European Union (CJEU) agreed with the Advocate General's conclusions, and held*:*

> *"40. Authorisation for a plan or project, as referred to in Article 6(3) of the Habitats Directive, may therefore be given only on condition that the competent authorities – once all aspects of the plan or project have been identified which can, by themselves or in combination with other plans or projects, affect the conservation objectives of the site concerned, and in the light of the best scientific knowledge in the field – are certain that the plan or project will not have lasting adverse effects on the integrity of that site. That is so where no reasonable scientific doubt remains as to the absence of such effects."*

2.22. Hence a plan or project may be authorised only if no reasonable scientific doubt remains as to the absence of effects. Reasonable scientific doubt will exist if the evidence is not sufficiently conclusive, or if there are gaps in the information.

Guidance and other Relevant Documents

2.23. Guidance on the interpretation of key terms and concepts contained within the European and UK legislation of relevance to European designated sites is provided through several documents issued by the European

Commission and national organisations such as the JNCC and Natural England. This guidance is discussed below.

Natura Standard Data Forms

2.24. A standard reporting format has been developed for Natura 2000 sites (SPAs and SACs) to ensure that the relevant site selection information is reported and stored in a consistent manner which can be easily made available.

2.25. A standard reporting form for SPAs and SACs was developed by the European Commission and published in 1996. The form is used for all sites designated, or proposed to be designated as SPAs and SACs under the relevant Directives, with the information to be stored on a central database.

2.26. Article 4 of the Habitats Directive provides the legal basis for providing the data. Article 4 states that information shall include a map of the site, its name, location, extent and the data resulting from application of the criteria specified in Annex III and that this shall be provided in a format established by the Commission. Under Article 4 (paragraph 3) of the Birds Directive Member States are required to provide the Commission with all relevant information to enable it to take any appropriate steps in order to protect relevant species in areas where the Directive applies.

2.27. Whilst it is the relevant country agency (i.e. Natural England) that is responsible for designating a site, it is the JNCC who are responsible for collating the lists of European and international designated sites, together with relevant supporting information. The Nature 2000 Data Forms for SPAs and SACs are therefore made available by the JNCC.

2.28. Within the explanatory notes for Natura Standard Data Forms (European Commission 1996) the following "main objectives" of the Natura data form / database are given:

1. "to provide the necessary information to enable the Commission, in partnership with the Member States, to co-ordinate measures to create a coherent NATURA 2000 network and to evaluate its effectiveness for the conservation of Annex I habitats and for the habitats of species listed in Annex II of Council Directive 92/43/EEC as well as the habitats of Annex I bird species and other migratory bird species covered by Council Directive 79/409/EEC."

2. "to provide information which will assist the Commission in other decision making capacities to ensure that the NATURA 2000 network is fully considered in other policy areas and sectors of the Commission's activities in particular regional, agricultural, energy, transport and tourism policies."

3. "to assist the Commission and the relevant committees in choosing actions for funding under LIFE and other financial instruments where data relevant to the conservation of sites,

such as ownership and management practice, are likely to facilitate the decision making process."

4. "to provide a useful forum for the exchange and sharing of information on habitats and species of Community interest to the benefit of all Member States."

Managing Natura 2000 Sites (European Communities 2000)

2.29. The document entitled "Managing Natura 2000 Sites the provisions of article 6 of the Habitats Directive 92/43/CEE", published by the European Commission in 2000, provides guidelines to the Member States on the interpretation of certain key concepts used in Article 6 of the Habitats Directive. It should be noted that the section relating to Article 6(4) has subsequently been replaced through the publication of a further guidance document by the European Commission in 2007 entitled "Guidance document on Article 6(4) of the 'Habitats Directive', which is considered below under the relevant heading.

2.30. This document states at Section 2.3.3 that conservation measures must correspond to the ecological requirements of the habitats and species present for which the site is designated and that these requirements "involve all the ecological needs necessary to ensure their favourable conservation status".

2.31. At section 3.5 the guidance states, in relation to deterioration and disturbance of habitats or species:

> "Deterioration or disturbance is assessed against the conservation status of species and habitats concerned. At a site level, the maintenance of the favourable conservation status has to be evaluated against the initial conditions provided in the Natura 2000 standard data forms when the site was proposed for selection or designation, according to the contribution of the site to the ecological coherence of the network. This notion should be interpreted in a dynamic way according to the evolution of the conservation status of the habitat or the species."

2.32. Section 4.4.1 sets out that in determining what may constitute a likely 'significant' effect one should take into account the conservation objectives for the site and other relevant baseline information. In the second paragraph of this section of the document it is stated:

> "In this regard, the conservation objectives of a site as well as prior or baseline information about it can be very important in more precisely identifying conservation sensitivities."

2.33. Section 4.5.3 of the document sets out the duty of member states to provide certain specific information in support of the inclusion of a site within the Natura 2000 network. This information is to be provided in a format specified by the European Commission (the Natura 2000 Standard Data Form).

2.34. A link is drawn between the Standard Data Form and the formation of the sites conservation objectives within the text box at the end of section 4.5.3 of the guidance where it is stated:

> "The information provided according to the standard data form established by the Commission forms the basis for a Member State's establishment of the site's conservation objectives."

2.35. With regard to an assessment of the effects of a plan / project on the integrity of a site, the 'integrity of the site' is defined at Section 4.6.3 as:

> **"… the coherence of the site's ecological structure and function, across the whole area, or the habitats, complex of habitats and / or populations of species for which the site is or will be classified."**

2.36. The guidance is clear, within the text box at the foot of page 39, that an assessment as to the implications of the plan / project on the integrity of the site should be limited to an assessment against the sites conservation objectives:

> **"The integrity of the site involves its ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the site's conservation objectives."**

2.37. Section 5 of the document deals with Article 6(4) of the Habitats Directive. Note that this section has been expanded upon, and replaced by further guidance issued by the European Commission entitled "Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC" (2007). This document is dealt with below at paragraphs 2.57 – 2.61.

Assessment of Plans and Projects Significantly Affecting Natura 2000 sites- Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission 2001)

2.38. This document, published by the European Commission in 2001, gives guidance on carrying out and reviewing those assessments required under Article 6(3) and (4) of the Habitats Directive. It is provided as supplementary guidance and does not over-ride or replace any of that set out within Managing Natura 2000 (European Commission 2000) which as stated at page 6 of the document, "is the starting point for the interpretation of the key terms and phrases contained in the Habitats Directive". The guidance provided is not mandatory and it is clearly set out that its use is "optional and flexible" and that it is for "Member States to determine the procedural requirements deriving from the directive".

2.39. The guidance sets out the key stages in following the tests contained within the Habitats Directive. Pertinent to this application, stages one and two are relevant. Stage one is the screening stage assessing the likelihood of a plan / project resulting in a significant effect upon the European site. The second comprises the appropriate assessment.

2.40. Section 3.2.4 is concerned with Appropriate Assessment and specifically, the assessment against the conservation objectives of the European Site. Box 9 provides a list of five example conservation objectives for differing broad habitat types. One such example, that for a coastal site, taken from Box 9 is provided below:

> "to maintain the status of the European features of this coastal site in favourable condition, allowing for natural change. Features include coastal shingle vegetation and lagoons (within a candidate special area of conservation (SAC), which is also an SPA)."

Internal Guidance to decisions on 'Site Integrity': A framework for provision of advice to competent authorities (English Nature 2004)

2.41. Natural England (formerly English Nature) has produced an internal guidance document on the provision of advice to competent authorities regarding the concept of "site integrity" in undertaking an appropriate assessment.

2.42. This guidance sets out a definition for integrity. It states that integrity is considered at the site level and gives the following definition, as taken from PPG9:

> "The coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and / or levels of populations of the species for which it was classified".

2.43. Integrity is further defined within section 3.0 where it is stated that:

> "In a dynamic context 'integrity' can be considered as a site having a sense of resilience and ability to evolve in ways that are favourable to conservation."

2.44. The need to maintain, or restore the site to, favourable conservation status is dealt with in the final paragraph of section 3.0. Natural England quotes guidance issued jointly by the Environment Agency, English Nature and Countryside Council for Wales.

2.45. The guidance provides a checklist within section 4.1, for assessing the likelihood of an adverse effect on integrity occurring as a result of the proposed plan / project. It is stated that if the answer to all of the questions posed within the checklist is "yes" then it is reasonable to conclude that there will be no adverse effect upon integrity. In the event that one or more of the answers is no, then the guidance suggests that a series of further site specific factors, listed at 4.2 – 4.7 of the guidance must be.

Common Standards Monitoring (JNCC February 2004)

2.46. Common Standards Monitoring is a means by which condition objectives for habitats, species, or other features of designated sites (e.g. Sites of Special Scientific Interest – SSSIs, and SPAs) are set based on key attributes of the features.

2.47. The Joint Nature Conservation Committee (JNCC) and the country Conservation Agencies (e.g. Natural England) developed guidance on the setting and assessing of condition objectives, as required under the Birds and Habitats Directives and set out a framework for this in 1999. This framework is provided in the form of Common Standards Monitoring (CSM) guidance which comprises a suite of documents including an "Introduction to the Guidance Manual on Common Standards Monitoring" and several species / habitat specific documents, including those for lowland heathland, birds, reptiles and invertebrates. The Introduction to the Guidance Manual covers various relevant concepts and terms. It also provides a background to the setting of conservation objectives and sets out the desired approach to setting targets, monitoring, management and reporting on conservation measures in designated sites.

2.48. The Introduction to CSM Guidance and CSM guidance for individual site attributes (e.g. its bird interest) set out specific criteria regarding the identification of interest features, targets and methods of assessment. There is in-built flexibility and allowances for 'judgements to be made' when assessing, for example, favourable condition.

2.49. It is understood that Natural England applies the Common Standards Monitoring approach to European designated sites through an assessment of the SSSI unit condition. This is undertaken on a cycle of approximately 6 years. The assessment does not relate to the Conservation Objectives of the European site, but provides a tool for tailoring future management of the SSSI such that favourable condition of the interest features can be maintained or restored as appropriate.

National Planning Policy Framework (2012) and ODPM / Defra Circular (ODPM & Defra, 2005)

2.50. Paragraphs 113 and 118 of the National Planning Policy Framework (2012) are of direct relevance. Paragraph 113 is concerned with the hierarchy of international, national and locally designated sites such that "protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks". Bullet point six at paragraph 118 asserts that Ramsar sites, proposed SPAs, SACs and sites providing compensatory measures for adverse effects on European sites should be afforded the same level of protection as classified SPAs and designated SACs.

2.51. Guidance on the determination of whether an effect on a European designated site is likely to be significant, together with the scope of appropriate assessments and ascertaining the effect on the integrity are provided within the DEFRA Circular (ODPM & DEFRA, 2005). This DEFRA

Circular was published in relation to Planning Policy Statement 9 (PPS(9), which was superseded by the National Planning Policy Framework (2012). However, the National Planning Policy Framework retains reference to the DEFRA Circular (2005).

2.52. With respect to the significance test, the DEFRA Circular states at paragraph 13 that:

> "The decision as to whether an appropriate assessment is necessary should be made on a precautionary basis".

2.53. The Waddenzee Judgement is specifically referred to at paragraph 13 of the Circular. With regards to the need to undertake an appropriate assessment; this is only required where it is not possible to conclude, on the basis of objective information, that the plan / project will not have a significant effect on the European site, either individually or in combination with other plans / projects.

2.54. Paragraph 14 clarifies that in considering the likely significance of an effect, the decision taker should assess whether the effect would be significant in terms of the sites conservation objectives.

2.55. Paragraph 15 clarifies the importance of assessing the likely significant effect on each of the interest features for which the site is designated.

2.56. Guidance on the scope of an Appropriate Assessment is provided at paragraph 17:

> "If the decision-taker concludes that a proposed development (not directly connected with or necessary to the management of a site) is likely to significantly affect a European site, they must make an appropriate assessment of the implications of the proposal for the site in view of the site's conservation objectives. These relate to each of the interest features for which the site was classified…The scope and content of an appropriate assessment will depend on the nature, location, duration and scale of the proposed project and the interest features of the relevant site. It is important that an appropriate assessment is made in respect of each interest feature for which the site is classified; and for each designation where a site is classified under more than one international obligation…"

2.57. At paragraph 20 the definition of "integrity" for the purpose of interpreting the tests contained within the Habitats Regulations is given as:

> "The integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified."

2.58. The DEFRA Circular includes a flow diagram (see Appendix 1) setting out the series of steps competent authorities are required to take in considering proposals affecting Internationally designated Nature Conservation Sites.

This is based on the information and flow charts given in guidance issued by the European Commission (European Commission Environment DG, 2001).

2.59. The information contained within this report follows the steps outlined in the flow diagram and takes account of the EC guidance on the basis of information currently available on the nature of the development in relation to those Internationally Designated Nature Conservation Sites identified within this assessment. Professional judgement has been applied to interpret this information within the context of the sites' conservation objectives and the criteria under which they are designated.

Guidance document on Article 6(4) of the 'Habitats Directive' (European Commission 2007)

2.60. This document, published by the European Commission in 2007, is intended to provide clarification on key terms / concepts as referred to within "Managing Natura 2000 Sites" and replaces the section on Article 6(4) within that earlier document.

2.61. The Guidance document covers, in particular, the concepts of Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensation Measures, Overall coherence and the Opinion of the Commission.

2.62. With regard to ensuring the quality of an appropriate assessment, and to define exactly what needs to be compensated, it is stated at Section 1.3 that:

> "Assessment procedures of plans or projects likely to affect Natura 2000 sites should guarantee full consideration of all elements contributing to the site integrity and to the overall coherence of the network, both in the definition of the baseline conditions and in the stages leading to identification of potential impacts, mitigation measures and residual impacts. These determine what has to be compensated, both in quality and quantity."

2.63. The need to use information contained within the Natura Standard Data Form, in tandem with the sites conservation objectives when undertaking an appropriate assessment is specifically referred to (under the second hyphenated point at Section 1.3 on page 5).

2.64. Section 1.3.2 gives guidance on the application of Article 6(4) in respect of reasons of overriding public importance and Section 1.4.1 gives guidance on the application of Article 6(4) in respect of compensatory measures.

Conservation Objectives

2.65. The Conservation Objectives for SPAs and SACs are published by Natural England. Those for the Deben Estuary SPA are included at Appendix 2.

3. SITE LOCATIONS AND BACKGROUND

3.1. The Deben Estuary SPA/Ramsar site is located to the south and west of the Application Site, approximately 390m away at its closest point. Other European / international designated sites are located at considerably greater distances.

3.2. For completeness, the closest such sites are the Sandlings SPA (located approximately 4.2km to the east) and the Stour and Orwell Estuaries SPA/Ramsar site (approximately 10km to the south).

3.3. Given the nature of the Development Proposals and the distances involved, it is considered that no potential significant effects would arise in relation to the Sandlings SPA and the Stour and Orwell Estuaries SPA/Ramsar site, or any other European designated site located at greater distances. It is also noted that Natural England have not raised any concerns in relation to potential significant effects on European site other than the Deben Estuary SPA/Ramsar site. Further detailed consideration in relation to any of these other sites is not considered necessary for the purpose of this assessment.

3.4. Detailed consideration has however been given to potential significant effects arising in relation to the Deben Estuary SPA/Ramsar site.

3.5. Deben Estuary SPA/Ramsar site

3.5.1. The Deben Estuary SPA and Ramsar site covers an area of 978.93ha. The relevant Natura Standard Data Form and Ramsar Information Sheet is included at Appendix 3.

3.5.2. The Deben Estuary SPA/Ramsar site comprises one underpinning SSSI, namely the Deben Estuary SSSI. The citation for this SSSI is included at Appendix 3.

3.6. Relationship between the SPA/Ramsar site and the Application Site

3.6.1. The relationship between the SPA/Ramsar site is shown graphically at Plan ECO1.

4. CONSERVATION STATUS OF THE SPA/RAMSAR SITE

4.1. SPA Qualifying Features

4.1.1. The Deben Estuary is relatively narrow and sheltered. It comprises shifting sandbanks within the estuary mouth with saltmarsh and intertidal mudflats occupying the majority of the rest of the site. The estuary holds a range of swamp communities that fringe the estuary and the site holds the most complete range of saltmarsh community types in Suffolk.

4.1.2. The Deben Estuary SPA qualifies under Article 4.1 of the Birds Directive on account of it supporting Annex I species Avocet *Recurvirostra avocetta*.

4.1.3. The SPA further qualifies under Article 4.2 of the Birds Directive on account of it supporting important populations of over-wintering Dark-bellied Brent Goose *Branta bernicla bernicla.*

4.1.4. The Natura 2000 Standard Data Form for the SPA is included in Appendix 3.

4.2. Ramsar Site Qualifying Features

4.2.1. The Deben Estuary Ramsar site qualifies under Ramsar criteria 2 and 6. The qualifying features under criterion 2 relate to the site supporting the mollusc Narrow Mouthed Whorl Snail *Vertigo angustior* and under criterion 6 due to the site supporting an over-wintering population of Dark-bellied Brent Goose.

4.2.2. The Ramsar Information Sheet for the Ramsar site is included in Appendix 3.

4.3. Condition of SPA/Ramsar site habitats

4.3.1. Habitat information for each of the management units of the Deben Estuary SSSI is given within the 'condition assessment comment' included at Appendix 4. There are currently 22 management units, of which the majority are documented as being in "unfavourable and declining condition', with the condition of six units being documented as "favourable". For clarity, the unit in closest proximity to the Application Site (6) is classified as being in unfavourable and declining condition.

4.3.2. Favourable condition for the SSSI is defined as being adequately conserved and meeting its 'conservation objectives'.

4.4. Conservation Objectives

4.4.1. The Habitats Regulations require an appropriate assessment to be undertaken "in view of the site's nature conservation objectives". Conservation objectives are a statement of the measures required to

maintain at, or restore to, favourable conservation status the natural habitats and / or the populations of species of wild fauna and flora for which the site has been selected. The conservation status of a species is defined as favourable when the population, range and natural habitats of the species are stable or increasing. Similarly the conservation status of a habitat is favourable when the range, structure and function, and typical species thereof, are stable or increasing.

4.4.2. The Conservation Objectives for the Deben Estuary SPA are included at Appendix 2.

4.5. Deben Estuary SSSI qualifying features

4.5.1. The Deben Estuary SSSI is designated on account of the quality of the saltmarsh habitat which supports some nationally significant communities of flora and fauna. Plant, mollusc and bird communities are specifically cited as being of importance.

4.5.2. Whilst the principal purpose of this document is to address potential significant effects on the SPA, for completeness, given the underpinning nature of the SSSI designation and the consistency of site boundaries, consideration is also give to effects on the SSSI where relevant.

5. ASSESSMENT OF THE IMPLICATIONS OF THE DEVELOPMENT PROPOSALS FOR THE SPA CONSERVATION OBJECTIVES

5.1. Section 2 of this document sets out the legislation, guidance and case law of relevance to an assessment of the implications of a plan / project on a European site. Having regard to this legislation and supporting guidance it is clear that the assessment is a two stage process, the first being the 'likely significant effect' stage, the second being the 'integrity test'.

5.2. It is clear that the Conservation Objectives of the European site are the most important consideration in determining whether the plan / project will have an adverse effect on the site, including any effects on its integrity. Indeed, some guidance indicates that it is only the Conservation Objectives against which the plan / project should be tested in line with the Habitats Directive / Regulations. However, other European guidance implies that additional information is relevant.

5.3. It is evident that there is a clear hierarchical approach to assessing effects on European sites in line with the Habitats Directive / Regulations. The primary test is that against the Conservation Objectives (updated since 2012 to include specific reference to qualifying interest features) with other considerations following these. Such other considerations would include:

- Other features of interest associated with the site; and
- Other relevant baseline information for the site.

5.4. In line with the above, whilst the qualifying interest features of the site and other baseline information have informed this assessment, the greatest weight has been placed upon the formal conservation objectives for the European site, as set out by Natural England.

5.5. This section includes a description of the potentially significant effects arising from the Development Proposals at the Application Site on the SPA/Ramsar site. The potential effects are assessed within this section in order to address the test under Regulation 61(1) in the first instance. The assessment of potential significant effects is undertaken at this stage of the Development Proposals "alone" (i.e. not "in combination").

5.6. In undertaking this assessment, consideration has been given to the best available scientific knowledge. An appropriate assessment (if required) could therefore be undertaken consistent with the *Waddenzee* Judgement, which requires the use of the best scientific knowledge to inform a decision where no reasonable scientific doubt remains as to the presence and / or absence of effects that would adversely affect the integrity of the designated site (see Section 2 above). Furthermore, consideration is given to the Dilly Lane High Court Judgement; whereby it is deemed right and proper to consider the mitigation designed into the plan / project as being an integral part of the plan / project and that as such, they should not be viewed separately (see section 2 above).

5.7. **Potential Effects on the SPA/Ramsar site/SSSI in the absence of Mitigation**

5.8. The planning application is for the development of up to 215 residential dwellings. An illustrative framework and masterplan [**CONFIRMATION NEEDED**] have been submitted demonstrating the general design principles of the Development Proposals (see Appendix 5). The detailed design and layout would be submitted as part of a future Reserved Matters application.

5.9. Key to the design principles of the scheme is the provision of public open-space, which forms a central spine through the development, running from east to west. This area will comprise new and retained vegetation, an attenuation basin and a circular footpath. Existing habitat features within this area, such as hedgerows, trees/scrub and grassland will be retained and enhanced where possible. New features to be present in this area include an attenuation basin, woodland and buffer planting, a circular walking route and an amenity play area.

5.10. In view of the reasons for the qualification of the SPA/Ramsar site, the distance of the Application Site from these designated sites and the nature of the Development Proposals, the following pathways for potential significant effects have been screened out of requiring further detailed assessment:

- Effects from increased **noise** and **lighting** during both the construction and operational phases of the Development Proposals;
- Effects relating to **air quality** (e.g. dust deposition) during both the construction and operational phases of the Development Proposals;
- Matters relating to direct **'land take'** at the SPA/Ramsar site; and
- Matters relating to **supporting habitat** for the SPA/Ramsar site.

5.11. In reaching the above conclusion, due regard has been had to the position of Natural England as expressed within correspondence (letters dated 23rd July 2015 and 1st May 2015). Copies of the relevant letters are included at Appendix 6).

5.12. Natural England's clear position (by reference to the letters dated 23rd July 2014 and 1st May 2015) is that in order to properly inform the Habitats Regulations Assessment, specific consideration should be given to the impact of increased recreational activity on qualifying bird features of the SPA and Ramsar site. It is Natural England's advice (letter dated 23rd July 2014) that the Ramsar qualifying feature, Narrow Mouthed Whorl Snail, "is not likely to be affected by these proposals" and as such potential effects have been screened out of requiring any detailed assessment.

5.13. In light of the above, potential pathways for significant effects are considered to be limited to the following:

- Disturbance effects on **qualifying bird features** through increased recreational use of the SPA/Ramsar site (e.g. dog walking, walking

and cycling) during the operational phase of the Development Proposals.

Disturbance effects on qualifying bird interest features

5.14. Given the distances involved, it is considered that there is potential for new residents associated with the proposed development to access areas of the SPA/Ramsar site (e.g. for recreational purposes), thereby increasing visitor pressure on the site and potentially disturbing birds, including those listed as designating features of the site.

Vulnerability

5.15. The SPA/Ramsar site is designated on account of its over-wintering bird populations (Avocet and Dark-bellied Brent Goose - see Section 4). Thus potential significant effects are limited to the winter period only.

5.16. During winter, birds are susceptible to adverse effects through disturbance due to food sources being scarcer and efficient use of energy being of heightened importance to survival.

5.17. The recent report titled "The Deben Estuary and its hinterland: Evaluation of key areas for birds, recreational disturbance issues and opportunities for mitigation and enhancement"[1] (produced by SWT Trading Ltd in 2014) has been used order to inform the baseline position, in terms of population numbers and distribution of the two key species in question (Avocet and Dark-bellied Brent Goose). Relevant extracts from this report are appended to this IHRA, and these are referenced where appropriate below.

5.18. A table ("Table 1") showing the current and historic population status of bird interest features (SSSI/SPA and Ramsar site), together with the associated level of importance (e.g. national or international) is shown at Appendix 7.

5.19. As can be seen in Table 1 at Appendix 7, the numbers of Dark-bellied Brent Goose and Avocet have declined since classification/designation of the SPA/Ramsar site, with the current population levels below the threshold for international importance. They are however still at a level which would be considered of national importance (exceeding the relevant threshold). Population numbers of Black-tailed Godwit, an interest feature of the SSSI but not a qualifying feature of the SPA or Ramsar site, have risen over recent years and this species would now meet the relevant qualifying population threshold for international importance. Since Black-tailed Godwit is not a qualifying feature of the SPA or Ramsar site, detailed assessment for the purpose of addressing the tests of the Habitats Regulations is not required in this instance and any reference to this species in this report is purely by way of completeness, to provide additional comfort that the Development Proposals would not adversely impact upon the Deben Estuary SSSI. Other species considered in this light include Shelduck and Redshank, which along with Black-tailed Godwit were specifically cited by

[1] Mason *et al* The Deben Estuary and its hinterland: Evaluation of key areas for birds, recreational disturbance issues and opportunities for mitigation and enhancement (2014) SWT Trading Ltd.

Natural England as important features of the SSSI, which could be affected by the Development Proposals.

5.20. In terms of the recorded distribution of the above named species, detail is provided in the aforementioned report (Mason ***et al,*** 2014). This information is summarised below.

5.21. Avocets are known to forage throughout the estuary / river, with the main roost sites between Bawdsey Quay and north to Ramsholt, with Woodbridge also used by some birds.

5.22. Dark-bellied Brent Geese are documented as consistently using arable fields between Bawdsey and Ramsholt; at Felixstowe, Falkenham and Kirton Marshes; north of Hemley and north of Waldringfield. They have also been recorded in the fields around Methersgate. In addition to arable habitat, they are known to forage on Common Eelgrass *Zoostera marina* (present but declining) within the estuary when the birds first arrive and also use other parts of the estuary (SPA/Ramsar site) for either loafing, roosting or foraging.

5.23. Black-tailed Godwit were historically concentrated in the stretch of the river between Martlesham Creek and Woodbridge / Melton at low tide (e.g. foraging). At low tide they are now likely to be found more widely spread, in small groups north of Ramsholt. At high tide they feed on grazing marshes and the main roost sites appear to be in the Falkenham Creek area.

5.24. Shelduck forage, roost and loaf throughout the estuary. Redshank are again widespread within the estuary, foraging in the main at, or close to the tide line but also on drier exposed mud or saltmarsh habitat. The main foraging area for this species is from Falkenham Creek to the Kirton Creek area.

5.25. The key foraging and roosting sites for the above species are shown at Appendix 8.

5.26. The SWT Trading report highlights those parts of the estuary which are deemed to be most sensitive to recreational disturbance. These areas are shown graphically on the plan included at Appendix 8. As can be seen, from this plan, Martlesham Creek, which is the closest part of the SPA/Ramsar site to the Application Site is not listed as a sensitive area. However, the area immediately south of the creek is highlighted as being "highly sensitive", and that to the north (near the settlement of Woodbridge) as "sensitive".

Assessment of impacts (SPA / Ramsar site)

5.27. This assessment is necessarily focussed upon the potential for disturbance to Dark-bellied Brent Geese and Avocets.

5.28. In terms of foraging, in line with the evidence available Avocet are assumed to utilise all parts of the estuary including those parts in closest proximity to the Application Site, whilst Dark-bellied Brent Geese will use the estuary

near Woodbridge to some extent (before moving off to arable habitat), but the main foraging area is in excess of 4km south of the Application Site.

5.29. With regard to roosts, the main Avocet roost is located approximately 9km southeast of the Application Site and that for Dark-bellied Brent Geese is (as for foraging) in excess of 4km south of the Application Site.

5.30. It should be noted that the Application Site does not contain any habitat which would be utilised by the qualifying bird species and thus there would be no direct effect on 'supporting habitat' for the SPA/Ramsar site.

Pathways for potential effects

5.31. The following main pathways for potential significant recreational disturbance effects on the bird interest features have been identified:

- Dogs (dog walking);
- Walkers;
- Watercraft / water-sports (e.g. boats, canoes/kayaks and jet-skis);
- Wildfowling / shooting.

5.32. All of these activities are specifically cited within the SWT Trading report and such pathways are typical of those cited for other coastal SPAs and Ramsar sites. In particular a comparison can be made with the Chichester and Langstone Harbours SPA/Ramsar site where a considerable amount of detailed research into recreational disturbance (including quantitative assessment) has been undertaken regarding effects on wintering (and breeding) bird species. In the case of the Chichester and Langstone Harbours SPA/Ramsar site, additional pathways cited include fishing and bait collection and 'wildlife watching'.

5.33. There is little available information in terms of a quantitative assessment into existing recreational pressure, although the SWT Trading report gives a useful account for assessment purposes and the findings (in terms of relevant pathways) are comparable to those for other estuaries (SPAs), such as the Chichester and Langstone Harbours SPA/Ramsar site, mentioned above, and also the Stour and Orwell Estuaries SPA (Ravenscroft et al – 2007)[2].

5.34. Without suitable mitigation the Development Proposals are likely to result in a measurable increase in walkers / dog walkers using the SPA and further consideration is required. Watercrafting / watersports are typically associated with summer months and increases in these activities as a result of the development proposals will be *de minimis*. Shooting and Wildfowling are highly specialised and regulated activities and the potential increase in residents that undertake such activities is again considered *de minimis.*

[2] Ravenscroft et al, (2007) Disturbance to waterbirds wintering in the Stour and Orwell Estuaries SPA, Wildside Ecology.

5.35. Detailed research into recreational pressure on qualifying bird interest features at SPA's, including an analysis of visitor use, is available for other sites, most notably the Thames Basin Heaths SPA and Dorset Heathlands. These studies are often cited when assessing visitor impacts at SPAs and the findings have been used to steer mitigation and avoidance packages at project and plan level Habitats Regulations Assessments. Similar detailed studies have also been undertaken for Sandlings SPA in Suffolk (Cruickshanks *et al*, 2010)[3]. These studies were all used (in part) to assess potential significant effects (and effects on Integrity) on European/international designated sites which could arise through the Suffolk Coastal District Council Core Strategy.

5.36. A further study undertaken by the No Adastral New Town (NANT) action group is referenced within the Appropriate Assessment for the Core Strategy (The Landscape Partnership – 2011). However, it is considered that only limited weight can be placed on the findings of this study given its narrow scope.

5.37. Whilst a note of caution must always be exercised when comparing visitor access patterns on heathland (and other inland sites / habitats) with coastal sites, several key themes can be accepted. These are:

- Visitors will generally walk somewhere between 1.5km and 3km;
- Visitors will travel by car to access the designated site and travel several kilometres to do so;
- A significant number of visits (very often in excess of 50% will be connected with dog walking);
- Of the dog walkers a significant proportion will arrive by car.

5.38. It should be noted that the 'coast' itself has been found to be a significant draw for people during relevant work undertaken in respect of such sites. This matter is discussed further below in relation to appropriate mitigation / avoidance measures.

Defining the number of visitors

5.39. The Development Proposals are for the provision of 215 residential properties, a convenience store, associated infrastructure, open space and landscaping.

5.40. The proposals are for the construction of 215 residential units. The average number of residents per household within the Suffolk Coastal District[4] is 2.3. On this basis, the new development could give rise to 495 additional people.

5.41. A proportion of the existing population and some of the new residents would be expected to own pets, including dogs. Based on survey

[3] Cruickshanks *et al* (2010) Suffolk Sandlings Living Landscape Project Visitor Survey Report, Footprint Ecology and Suffolk Wildlife Trust.
Footprint Ecology / Suffolk Wildlife Trust.
[4] 2011 Census, Office for National Statistics

information available from the Pet Food Manufacturers Association[5] the latest available data shows that nationally 24% of households own dogs. However, data from the east of England region shows that 23% of households own dogs.

5.42. Using the regional data for dog ownership, it can be estimated that the existing number of households in Suffolk Coastal District which own dogs (one or more) is 13,346. The Development Proposals would deliver an additional 215 residential properties, of which 50 may be expected to own dogs. Thus, potentially 13,396 households would own dogs in Suffolk Coastal District (following full occupation of the Development Proposals) and this equates to an increase over the existing situation of around 0.37%.

5.43. Given the lack of specific relatable visitor survey data for the Deben Estuary SPA the population increase of 0.37% is used as a worst case basis to calculate increased visitor numbers at the site. If the number of visitors to the SPA were to increase by 0.37% as a result of the Development Proposals an additional 3 visitors per day. If these 3 visitors were dog owners, they may visit the SPA twice per day and result in an additional 6 visits per day. This is again considered on a worst case basis and it would not be expected that dog walkers would use the SPA twice daily.

5.44. Whilst it is important to consider this potential increase in dog ownership, it is also important to recognise that the existing residential households in the local area which own dogs will already be contributing to a level of 'pressure' on birds at the SPA including those listed as designating species of the site.

5.45. Access to nearby recreational areas for dog walking will be required by new residents. In the absence of suitable additional recreation / open space provision in the immediate vicinity of the new dwellings, it is possible that new residents would access habitat associated with the SPA on a more regular basis than would otherwise be the case. Access to the footpaths along the SPA is possible by using existing roads and footpaths in the local vicinity most notably via Sandy lane to the east of the Application Site. Information of existing public footpaths, including formal rights of way is shown on Plan ECO2.

5.46. On the evidence available, it is considered that the Development Proposals would not give rise to a significant effect on the SPA, by way of impacts on wintering birds. Notwithstanding this, in order to provide 'certainty' (in line with the Waddenzee Judgment and the Sweetman case) and additional comfort to the Competent Authority in granting a legally compliant consent, a package of mitigation and avoidance measures aimed at mitigating / avoiding recreational impacts on the SPA has been put forward. This is discussed in detail further below in Section 6.

<u>Consideration of impacts on the River Deben SSSI</u>

[5] PFMA (2014) Pet Population 2014: http://www.pfma.org.uk/pet-population-2014

5.47. In its letter of 1st May (see Appendix 6), Natural England raised concerns in relation to potential impacts on the Deben Estuary SSSI as a result of the Development Proposals. It stated that:

> "Natural England is not yet satisfied that the proposed operations are not likely to damage any of the interest features of the Deben Estuary SSSI."

5.48. It is considered that in undertaking this detailed assessment of the Development Proposals and in the light of the mitigation / avoidance measures described herein, no adverse impacts on the qualifying features of the SSSI would arise. Those mitigation / avoidance measures proposed in relation to potential significant effects on the SPA would be equally relevant to the Deben Estuary SSSI. No additional mitigation is considered necessary.

6. MITIGATION / AVOIDANCE MEASURES AND IN COMBINATION TEST

6.1. The mitigation / avoidance strategy for the SPA comprises a single key element focussed on measures to reduce both existing and (potential) additional recreational pressures on the SPA through walking / dog walking (effects on birds).

Effects on the SPA / Ramsar / SSSI with Mitigation / Avoidance Measures

6.2. A recognised means of mitigating potential detrimental effects on an SPA through increased visitor pressure is through the provision of additional informal green space in close proximity to a new residential development. This has been the approach used in relation to the Thames Basin Heaths SPA and has been advocated by Natural England in the production of the Thames Basin Heaths Draft Delivery Plan (DDP), which provides a vehicle for mitigation in respect of new residential development in close proximity to the Thames Basin Heaths SPA.

6.3. Whilst it is accepted that the designating features and conservation objectives of the Thames Basis Heaths SPA, which are concerned with the populations of Woodlark, Nightjar and Dartford Warbler (heathland birds) are different from those of the Deben Estuary SPA, it is considered that the principles in respect of visitor pressure and the resultant potential disturbance to the birds are fundamentally similar, although with some key differences. As such, it has been agreed with Natural England (Appendix 6) that the provision of additional informal green space represents a good way of alleviating any increase in visitor pressure at Deben Estuary SPA site in respect of the proposed development. The use of additional informal green space in respect of mitigating potential effects from increased recreational pressure on coastal sites is however untested. Nonetheless it forms a sensible approach, at least in part, to avoiding or reducing recreational pressure.

6.4. The Development Proposals will deliver cycling and walking / dog walking opportunities within the Application Site in the form of a circular walk / cycle path and additional open space in the centre of the site (see Appendix 5). Furthermore, the scheme design will not provide any direct links to the SPA and promote alternative recreation resources. The Development Proposals will provide 3.57ha of informal open space containing a circular route of 1.7km. This area will provide features of interest including a wooded area in the west, pond habitat in the east, grassland throughout and new boundary hedgerows. This open space will be managed to provide benefits to wildlife and will provide an attractive alternative to walks associated with the SPA. The convenience will be further enhanced with the removal direct access links to the SPA via Sandy Lane with the installation of hedgerows and fencing along this boundary.

6.5. The network of public footpaths and lanes within the vicinity of the Application Site provide opportunities for walking / dog walking and example circular routes have been identified (see Plan ECO2). A longer route leading from the Application Site entrance heads west, away from the SPA, and extends for 5.6km. A shorter circular route, again leading from

the Application Site entrance, extents of 1.3km and in combination with the 1.7km circular route within the Application Site forms a 3km walk.

6.6. Promotion of these routes will draw walkers / dog walkers away from footpaths leading to the SPA (specifically around the Martlesham Creek). These walks will be promoted by providing homeowner information packs detailing the walks and sensitivities of the SPA. Additionally, information boards at key points along the walk will be installed informing users of additional recreational resources. It is considered that due to the attractiveness, availability and convenience of these promoted walks they will form the most frequently used resource for walks per day by new residents. **[Confirmation of commitment to mitigation required]**

Additional measures to reduce recreational pressures on the SPA

6.7. The scheme design has ensured that no direct link is provided to the footpath which runs adjacent to the SPA.

6.8. The Development Proposals will deliver additional informal recreation opportunities 'on the doorstep' of new residents. Recreational (including dog walking) opportunities will be created in the form of public open space, with such provision including a circular walk of approximately 1.7km within the Application Site. This is shown on the plan included at Appendix 5.

6.9. Notwithstanding the above, on a precautionary basis it has been assumed that new residents will from time to time, gain access to the footpath leading to the Deben Estuary SPA, potentially increasing disturbance to birds. On this basis, additional measures have been put forward. These additional measures are as follows:

- Removing the available access point onto Sandy Lane from the Application Site with the installation of fencing and planting of hedgerow along the eastern boundary. As part of the site management the integrity of this barrier will be monitored for damage / breaches and once identified will be repaired immediately.

- Provision of new homeowner information packs highlighting the sensitivities of the SPA, the need to keep dogs on a lead and alternative recreation resources in the local area.

- Provision of a financial contribution towards the wardening and visitor management of the SPA.

- Provision of a financial contribution towards the design and installation of signage at access points of the Application Site. The signs would highlight circular routes available and the sensitivities of the SPA and the reasons why dogs should be kept on a lead near the estuary.

6.10. The contribution towards wardening would be secured through a planning obligation. **[N.B Comfirmation of contributions required]**

6.11. It is considered that the above measures would negate any perceived potential significant effects arising from the Development Proposals on the SPA through impacts on birds. Furthermore the installation of signage would help reduce potential significant effects arising in respect of existing use of the footpath by local residents.

Summary conclusion

6.12. It is considered that, having adopted a precautionary stance, the provision of mitigation / avoidance measures as described above, would avoid any potential significant adverse effects on the Deben Estuary SPA when the project is considered alone. Having undertaken an assessment of all possible effects on the SPA as a result of the Development Proposals, in view of the European sites Conservation Objectives, it is considered that the plan / project would not be likely to give rise to any significant effects. At worst, the plan / project would give rise to effects which would be classed as *de minimis*.

Specific consideration of the In-Combination Test

6.13. It is considered by Ecology Solutions that the potential effects identified in relation to the Development Proposals will be avoided or mitigated through the implementation of the measures described above such as contributions to wardening and visitor management. As such that there would be no significant residual adverse effects on the SPA when the plan / project is considered alone. In this light, in combination effects would not be possible.

6.14. Since Development Proposals are scrutinised so carefully by Competent Authorities and the relevant Statutory Authorities (including Natural England) in light of the Habitats Regulations, recent case law and guidance, it is not likely that another plan / project would come forward without appropriate and proportionate mitigation or avoidance measures to off set any perceived deleterious effects on a European designated site. In granting a legally compliant permission / consent for a plan or project, any necessary mitigation / avoidance measures, at an appropriate and proportionate scale must be secured.

6.15. The Development Proposals include measures which fully mitigate / avoid any detrimental impacts on the SPA and when considered alone, the project is not likely to result in a significant effect on the SPA. Indeed, the proposed measures will assist in reducing existing pressure on wintering birds (which are qualifying features of the SPA) in addition to avoiding further perceived effects on birds as a result of the Development Proposals.

6.16. On the basis that all relevant development proposals (plans / projects) must provide appropriate mitigation / avoidance measures, it is therefore concluded that there would not be any potential significant in-combination effects on the SPA as a result of the Development Proposals.

Summary Conclusion

6.17. Having considered all of the potential significant effects that could arise from the Development Proposals, in light of the avoidance and mitigation measures which form an integral part of the project, Ecology Solutions conclude that the proposals would not be likely to give rise to a significant effect on the SPA when the Development Proposals are considered either alone or in combination with other plans or projects.

6.18. No additional adverse impacts have been identified in relation to the Deben Estuary SSSI and no additional mitigation would be required.

7. SUMMARY AND CONCLUSIONS

7.1. Ecology Solutions has undertaken a detailed assessment of the implications of the Development Proposals on the Deben Estuary SPA in view of the European sites conservation objectives.

7.2. The findings of this work are set out within this Information to enable a Habitats Regulations Assessment document, such that the competent authority, in exercising its duties under the Habitats Regulations, has all the necessary information before it to considering the application.

7.3. Assessment under Regulation 61 of the Habitats Regulations is required in this instance, since the Application Site lies in close proximity to the Deben Estuary SPA. Consideration has also been given (where relevant) to any additional impacts which could arise in relation to the Deben Estuary SSSI.

7.4. All potential pathways for significant effects to arise on the SPA as a result of the Development Proposals have been fully examined. Where necessary mitigation / avoidance measures, which are integral to the project, have been described. This assessment has been undertaken with due regard had to relevant legislation, case law and planning decisions, guidance and information provided by Natural England during consultation on the Development Proposals.

7.5. It is considered that (having adopted a precautionary stance to the assessment) the provision of the mitigation / avoidance measures described within this document would avoid any potential significant adverse effects that the Development Proposals could have on the SPA in the absence of such measures.

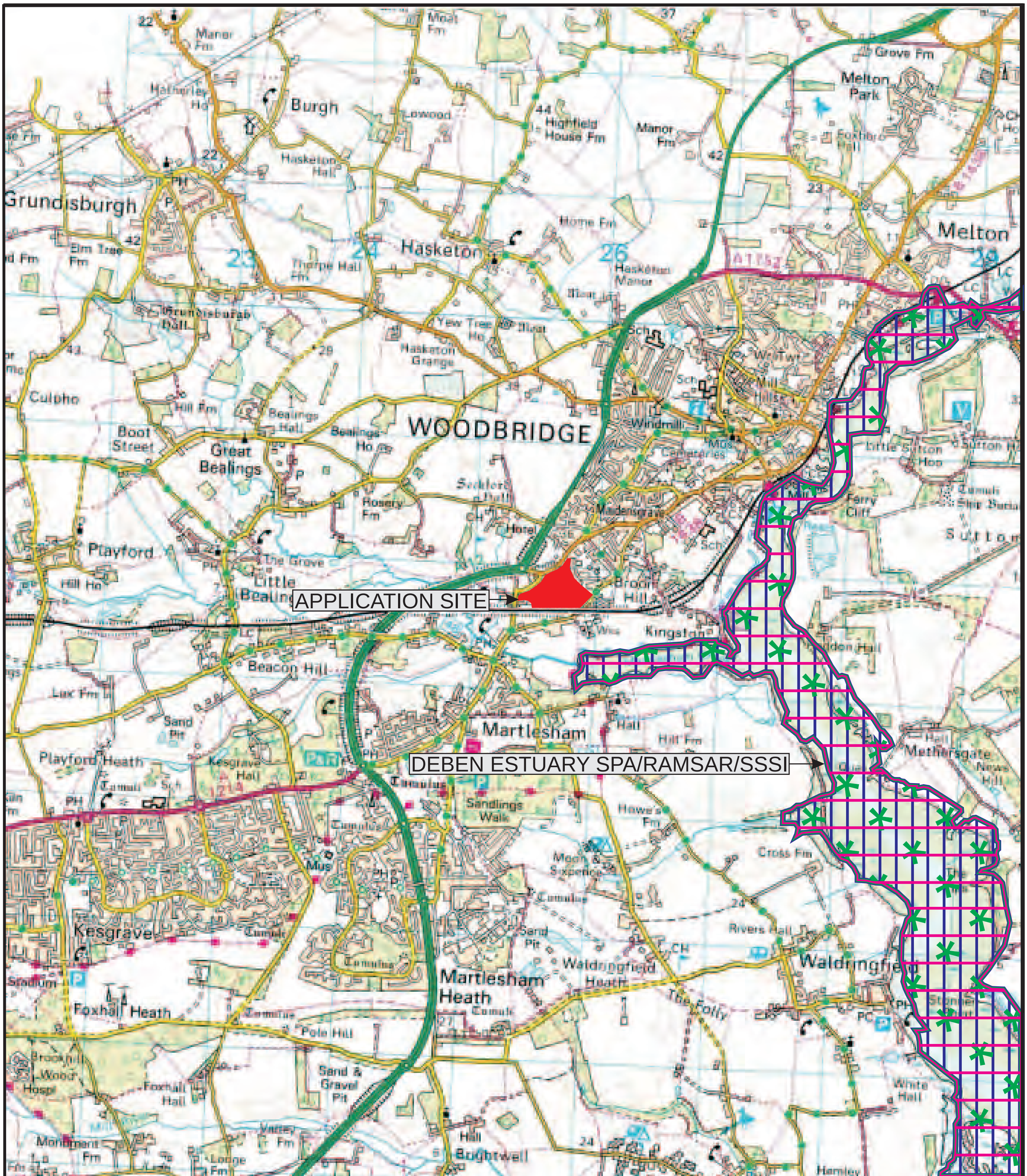
7.6. It has been concluded that there would be no potential likely significant (adverse) effects on the Deben Estuary SPA when the Development Proposals are considered either alone or in combination with other plans/projects, in light of the tests at Regulation 61(1) of the Habitats Regulations. There is therefore no requirement to undertake an Appropriate Assessment of the Development Proposals. No additional impacts have been identified in relation to Deben Estuary SSSI and no additional mitigation measures are considered necessary.

7.7. As the project alone or in combination would not contribute to an overall significant effect that may have an adverse impact on the integrity of the SPA (in view of the SPA conservation objectives), or adverse impacts on the SSSI, the Development Proposals would by definition be acceptable, subject to securing the mitigation and avoidance measures proposed. In those terms the competent authority could legally and safely grant consent for the proposed plan/project.

PLANS

PLAN ECO1

Application Site location in relation to the Deben Estuary SPA



KEY:

- APPLICATION SITE
- SPECIAL PROTECTION AREA (SPA)
- RAMSAR
- SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)

N

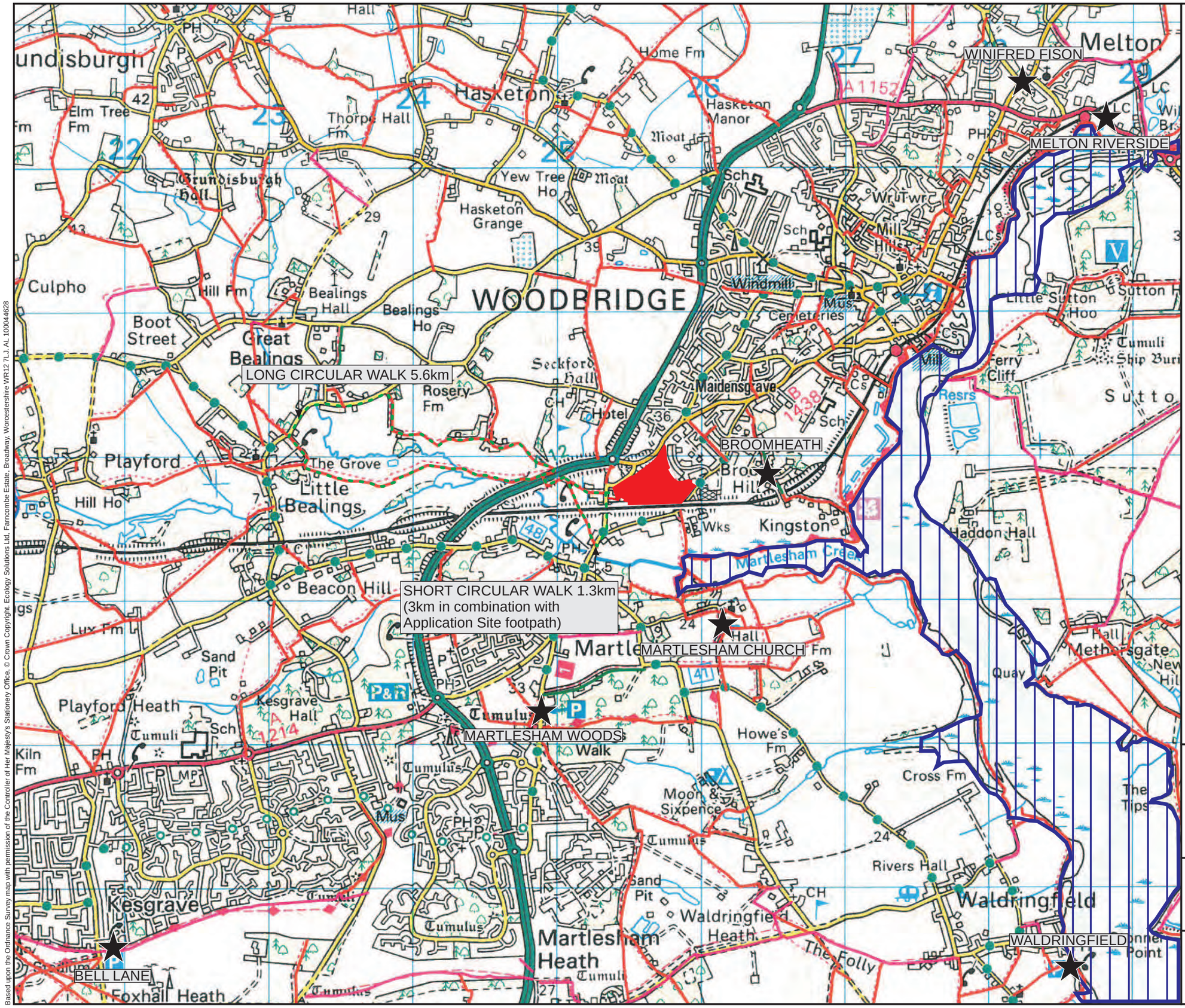
ecology solutions ltd

6512: LAND OFF DUKE'S PARK, WOODBRIDGE

PLAN ECO1: APPLICATION SITE LOCATION IN RELATION TO DEBEN ESTUARY (SPA/RAMSAR/SSSI)

PLAN ECO2

Rights of Way and Car Parks



KEY:

- APPLICATION SITE
- PUBLIC FOOTPATH
- BRIDLEWAY
- RESTRICTED BYWAY
- CAR PARK
- DEBEN ESTUARY SPA/RAMSAR/SSSI
- EXAMPLE CIRCULAR WALK

ecology solutions ltd

6512: LAND OFF DUKES PARK
WOODBRIDGE

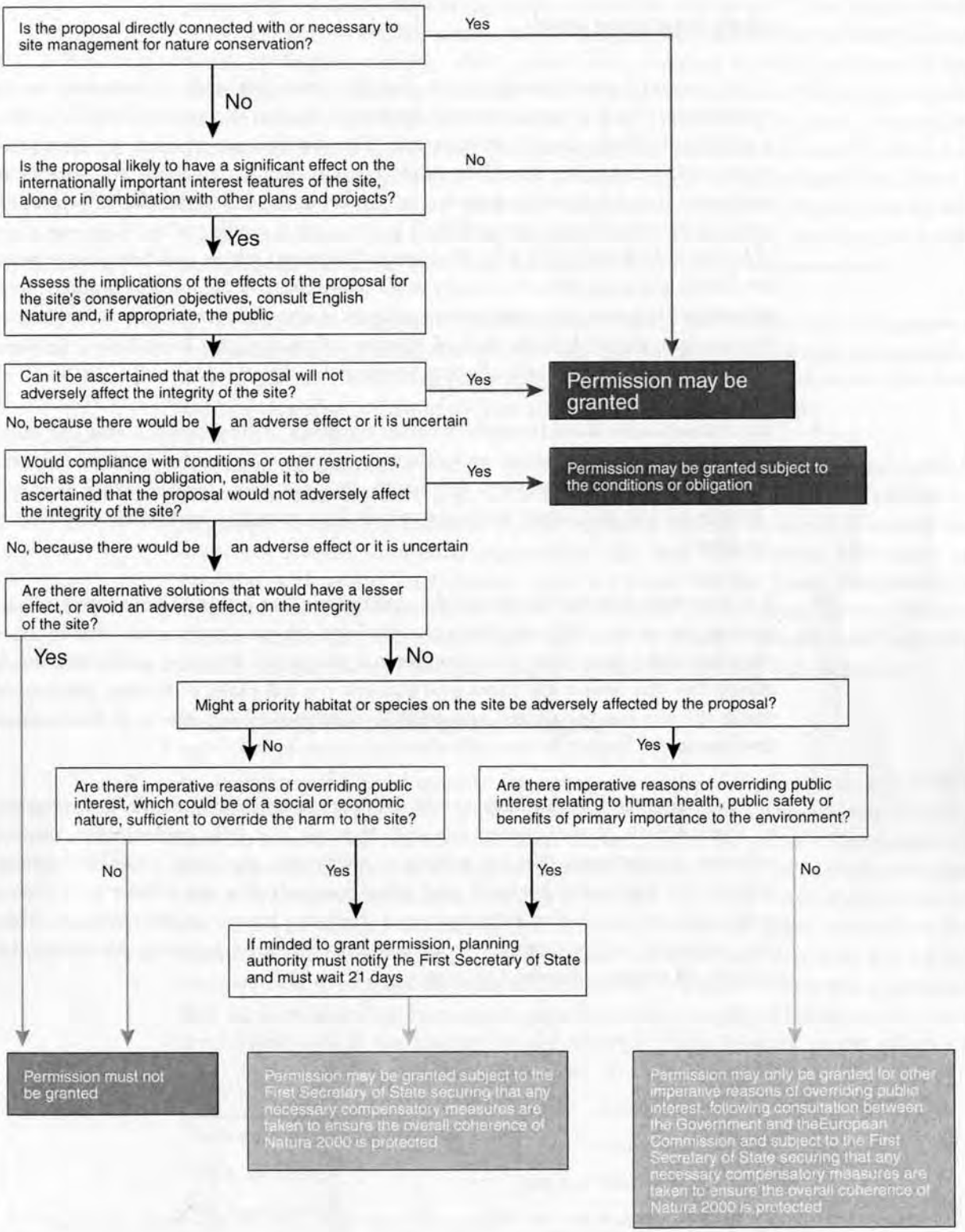
PLAN ECO2: RIGHTS OF WAY AND CAR PARKS

APPENDICES

APPENDIX 1

Flow Diagram from ODPM / Defra Circular

Figure 1: **Consideration of development proposals affecting Internationally Designated Nature Conservation Sites**



APPENDIX 2

Conservation Objectives for the Deben Estuary SPA

European Site Conservation Objectives for Deben Estuary Special Protection Area Site Code: UK9009261

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- **The extent and distribution of the habitats of the qualifying features**
- **The structure and function of the habitats of the qualifying features**
- **The supporting processes on which the habitats of the qualifying features rely**
- **The population of each of the qualifying features, and,**
- **The distribution of the qualifying features within the site.**

This document should be read in conjunction with the accompanying *Supplementary Advice* document, which provides more detailed advice and information to enable the application and achievement of the Objectives set out above.

Qualifying Features:

A046a *Branta bernicla bernicla*; Dark-bellied brent goose (Non-breeding)

A132 *Recurvirostra avosetta*; Pied avocet (Non-breeding)

This is a European Marine Site

This SPA is a part of the Deben Estuary European Marine Site (EMS). These Conservation Objectives should be used in conjunction with the Regulation 35 Conservation Advice document for the EMS. For further details about this please visit the Natural England website at: http://www.naturalengland.org.uk/ourwork/marine/protectandmanage/mpa/europeansites.aspx or contact Natural England's enquiry service at enquiries@naturalengland.org.uk or by phone on 0845 600 3078.

Explanatory Notes: European Site Conservation Objectives

These Conservation Objectives are those referred to in the Conservation of Habitats and Species Regulations 2010 (the "Habitats Regulations") and Article 6(3) of the Habitats Directive. They must be considered when a competent authority is required to make a 'Habitats Regulations Assessment' including an Appropriate Assessment, under the relevant parts of this legislation.

These Conservation Objectives and the accompanying Supplementary Advice (where this is available) will also provide a framework to inform the management of the European Site under the provisions of Articles 4(1) and 4(2) of the Wild Birds Directive, and the prevention of deterioration of habitats and significant disturbance of its qualifying features required under Article 6(2) of the Habitats Directive.

These Conservation Objectives are set for each bird feature for a Special Protection Area (SPA). Where the objectives are met, the site will be considered to exhibit a high degree of integrity and to be contributing to achieving the aims of the Wild Birds Directive.

Publication date: 30 June 2014 (Version 2). This document updates and replaces an earlier version dated 29 May 2012 to reflect Natural England's Strategic Standard on European Site Conservation Objectives 2014. Previous references to additional features identified in the 2001 UK SPA Review have also been removed.

APPENDIX 3

SPA Natura Form and the SSSI citation

NATURA 2000

STANDARD DATA FORM

FOR SPECIAL PROTECTION AREAS (SPA)
FOR SITES ELIGIBLE FOR IDENTIFICATION AS SITES OF COMMUNITY IMPORTANCE (SCI)
AND
FOR SPECIAL AREAS OF CONSERVATION (SAC)

1. Site identification:

1.1 Type A

1.2 Site code UK9009261

1.3 Compilation date 199603

1.4 Update 199803

1.5 Relationship with other Natura 2000 sites

1.6 Respondent(s) International Designations, JNCC, Peterborough

1.7 Site name **Deben Estuary**

1.8 Site indication and designation classification dates

date site proposed as eligible as SCI	
date confirmed as SCI	
date site classified as SPA	199603
date site designated as SAC	

2. Site location:

2.1 Site centre location

longitude	**latitude**
01 20 44 E	52 02 31 N

2.2 Site area (ha) 978.93

2.3 Site length (km)

2.5 Administrative region

NUTS code	Region name	% cover
UK403	Suffolk	100.00%

2.6 Biogeographic region

Alpine	Atlantic	Boreal	Continental	Macaronesia	Mediterranean
	X				

3. Ecological information:

3.1 Annex I habitats

Habitat types present on the site and the site assessment for them:

Annex I habitat	% cover	Representativity	Relative surface	Conservation status	Global assessment

3.2 Annex I birds and regularly occurring migratory birds not listed on Annex I

		Population				Site assessment			
		Resident	Migratory						
Code	Species name		Breed	Winter	Stage	Population	Conservation	Isolation	Global
A046a	*Branta bernicla bernicla*			2516 I		B		C	
A132	*Recurvirostra avosetta*			95 I		B		B	

4. Site description:

4.1 General site character

Habitat classes	% cover
Marine areas. Sea inlets	
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	80.0
Salt marshes. Salt pastures. Salt steppes	18.0
Coastal sand dunes. Sand beaches. Machair	
Shingle. Sea cliffs. Islets	1.0
Inland water bodies (standing water, running water)	
Bogs. Marshes. Water fringed vegetation. Fens	1.0
Heath. Scrub. Maquis and garrigue. Phygrana	
Dry grassland. Steppes	
Humid grassland. Mesophile grassland	
Alpine and sub-alpine grassland	
Improved grassland	
Other arable land	
Broad-leaved deciduous woodland	
Coniferous woodland	
Evergreen woodland	
Mixed woodland	
Non-forest areas cultivated with woody plants (including orchards, groves, vineyards, dehesas)	
Inland rocks. Screes. Sands. Permanent snow and ice	
Other land (including towns, villages, roads, waste places, mines, industrial sites)	
Total habitat cover	**100%**

4.1 Other site characteristics

Soil & geology:

Mud, Sedimentary

Geomorphology & landscape:

Coastal, Estuary, Intertidal sediments (including sandflat/mudflat), Lowland, Valley

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC)

Over winter the area regularly supports:

Recurvirostra avosetta (Western Europe/Western Mediterranean - breeding)	7.5% of the GB population 5 year peak mean 1991/92-1995/96

ARTICLE 4.2 QUALIFICATION (79/409/EEC)

Over winter the area regularly supports:

Branta bernicla bernicla (Western Siberia/Western Europe)	0.8% of the population 5 year peak mean 1991/92-1995/96

4.3 Vulnerability

The saltmarsh and intertidal habitats are vulnerable to sea level rise and coastal squeeze. These issues are being addressed through the Environment Agency LEAP, the estuary Shoreline Management Plan and research into possible managed retreat in parts of the site.

5. Site protection status and relation with CORINE biotopes:

5.1 Designation types at national and regional level

Code	% cover
UK04 (SSSI/ASSI)	100.0

EC Directive 79/409 on the Conservation of Wild Birds:
Special Protection Area

The Deben Estuary (Suffolk)

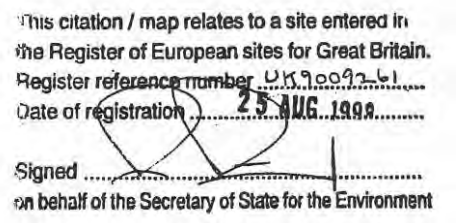
The Deben Estuary Special Protection Area (SP A) extends for about 18km from the mouth of the estuary at Felixstowe, on the east coast of Suffolk to near the tidal limit above Wilford Bridge. It is a relatively narrow and sheltered estuary with a limited amount of freshwater input and intertidal areas constrained by sea walls. Saltmarsh and intertidal mud flats occupy the majority of the site but there are also areas of reedswamp, unimproved neutral grassland and scrub. The estuary is largely surrounded by agricultural land.

The boundary of the SPA is coincident with the Deben Estuary SSSI, notified in 1991, and overlaps with the Ferry Cliff, and Sutton and Ramsholt Cliff geological SSSIs. The site includes all land above mean low water mark up to an inland boundary that follows variable features such as the upper limit of wetland habitat or the sea wall.

The site qualifies under Article 4.1 of the EC Birds Directive by regularly supporting nationally important numbers of avocet *Recurvirostra avosetta,* an Annex 1 species. The five year winter peak mean for the period 1988/89 to 1992/93 was 57 birds, representing 11.4% of the British population. Further Annex 1 species wintering on the site include golden plover *Pluvialis apricaria,* hen harrier *Circus cyaneus* and short-eared owl *Asio flammeus.*

The site qualifies under Article 4.2 of the Directive by regularly supporting internationally important numbers of dark-bellied geese, *Branta bernicula bernicula,* a regularly occurring migratory species. The five year winter peak mean for the period 1988/89 to 1992/93 was 1,889 birds, representing 2.1% of the British and 1.1% of the north-west European population. In addition the site supports nationally important numbers of the following migratory waterfowl (figures are five year winter peak means for the period 1988/89 to 1992/93): 1,046 shelduck *Tadorna tadorna* (1.4% of the British population); 252 grey plover *Pluvialis squatarola* (1.2% of British); 143 black-tailed godwit *Limosa limosa* (2.9% of British); and 1,454 redshank *Tringa totanus* (1.9% of British).

The site also supports a notable assemblage of breeding and wintering wetland birds in addition to the species mentioned above. Breeding species include shelduck, gadwall *Anas strepera,* teal *A. crecca,* shoveler *A. clypeata,* redshank, oystercatcher *Haematopus ostralegus,* ringed plover *Charadrius hiaticula* and snipe *Gallinago gallinago.* Wintering species include cormorant *Phalacrocorax carbo,* teal, pintail *Anas acuta,* wigeon *A. penelope,* goldeneye *Bucephala clangula,* coot *Fulica atra,* oystercatcher, ringed plover, dunlin *Calidris alpina,* snipe, curlew *Numenuis arquata,* turnstone *Areneria interpres* and twite *Carduelis flavirostris.* The estuary is more important for many species of waterfowl in years when severe weather reduces food resources available on the continent.



SPA Citation
March 1996

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:

Designated: 11 March 1996

3. Country:

UK (England)

4. Name of the Ramsar site:

Deben Estuary

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □;
ii**) an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* □;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

52 02 31 N 01 20 44 E

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: Ipswich

Deben Estuary is located in East Anglia, on the east coast of Suffolk. It extends 18 km from the tidal limit above Wilford Bridge near Woodbridge, south to the mouth of the estuary at Felixstowe.

Administrative region: Suffolk

10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 978.93

Min. -1
Max. 4
Mean 1

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

This estuary is relatively narrow and sheltered. It has limited amounts of freshwater input and the intertidal areas are constrained by sea-walls. The site supports nationally and internationally-important flora and fauna.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

2, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 2

Supports a population of the mollusc *Vertigo angustior* (Habitats Directive Annex II (S1014); British Red Data Book Endangered). Martlesham Creek is one of only about fourteen sites in Britain where this species survives.

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):

Species with peak counts in winter:

Dark-bellied brent goose, *Branta bernicla bernicla*,	1953 individuals, representing an average of 1.9% of the GB population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation)**:**

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Atlantic

b) biogeographic regionalisation scheme (include reference citation):

Council Directive 92/43/EEC

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16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	mud, sedimentary
Geomorphology and landscape	lowland, coastal, valley, intertidal sediments (including sandflat/mudflat), estuary
Nutrient status	eutrophic
pH	no information
Salinity	saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Lowestoft, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/lowestoft.html) Max. daily temperature: 13.0° C Min. daily temperature: 7.0° C Days of air frost: 27.8 Rainfall: 576.3 mm Hrs. of sunshine: 1535.5

General description of the Physical Features:

The Deben Estuary extends south-eastwards for over 12 km from the town of Woodbridge to the sea just north of Felixstowe. It is relatively narrow and sheltered, and has limited amounts of freshwater input. The estuary mouth is the narrowest section and is protected by the presence of shifting sandbanks. The intertidal areas are constrained by sea-walls. The saltmarsh and intertidal mudflats that occupy the majority of the site, however, display the

most complete range of saltmarsh community types in Suffolk. The estuary holds a range of swamp communities that fringe the estuary, and occasionally form larger stands. In general, these are dominated by common reed *Phragmites australis*.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The Deben Estuary extends south-eastwards for over 12 km from the town of Woodbridge to the sea just north of Felixstowe. It is relatively narrow and sheltered, and has limited amounts of freshwater input. The estuary mouth is the narrowest section and is protected by the presence of shifting sandbanks. The intertidal areas are constrained by sea-walls. The saltmarsh and intertidal mudflats that occupy the majority of the site, however, display the most complete range of saltmarsh community types in Suffolk.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

No special values known

19. Wetland types:

Marine/coastal wetland

Code	Name	% Area
H	Salt marshes	46.8
G	Tidal flats	36.8
F	Estuarine waters	15.3
U	Peatlands (including peat bogs swamps, fens)	1
E	Sand / shingle shores (including dune systems)	0.1

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The estuary supports a highly complex mosaic of habitat types including:

mudflats, lower and upper saltmarsh, swamp and scrub. The composition of the mosaic varies with substrate, frequency and duration of tidal inundation, exposure, location and management.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.

Higher Plants.

Althaea officinalis, Bupleurum tenuissimum, Lepidium latifolium, Puccinellia fasciculata, Sarcocornia perennis, Suaeda vera, Zostera angustifolia are nationally scarce plants associated with estuarine habitats.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species with peak counts in spring/autumn:

Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe	307 individuals, representing an average of 1.9% of the GB population (5 year peak mean 1998/9-2002/3)
Common greenshank , *Tringa nebularia*, Europe/W Africa	22 individuals, representing an average of 3.6% of the GB population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Bean goose , *Anser fabalis fabalis*, NW Europe - wintering	5 individuals, representing an average of 1.2% of the GB population (Source period not collated)
Common shelduck , *Tadorna tadorna*, NW Europe	832 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)
Pied avocet , *Recurvirostra avosetta*, Europe/Northwest Africa	167 individuals, representing an average of 4.9% of the GB population (5 year peak mean 1998/9-2002/3)
Spotted redshank , *Tringa erythropus*, Europe/W Africa	3 individuals, representing an average of 2.2% of the GB population (5 year peak mean 1998/9-2002/3)
Common redshank , *Tringa totanus totanus*,	2124 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Nationally important species occurring on the site.

Invertebrates.

Vertigo angustior (Nationally Scarce)
Vertigo pusilla (Nationally Scarce)

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23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Fisheries production
Non-consumptive recreation
Sport fishing
Sport hunting
Tourism
Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	+
National/Crown Estate	+	
Private	+	+

25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Cutting of vegetation (small-scale/subsistence)	+	
Fishing: commercial	+	
Fishing: recreational/sport	+	
Bait collection	+	
Arable agriculture (unspecified)		+
Grazing (unspecified)	+	+
Hunting: recreational/sport	+	
Flood control		+
Irrigation (incl. agricultural water supply)		+
Urban development		+
Non-urbanised settlements		+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
Erosion	2	Coastal squeeze within the Deben Estuary	+		+

For category 2 factors only.
What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Erosion - English Nature provides advice to the Environment Agency and coastal local authorities in relation to flood and coastal protection management. This will inform the development of the Suffolk Estuaries strategies and the second generation shoreline management plan.

Is the site subject to adverse ecological change? YES

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Site management statement/plan implemented	+	
Other	+	+
Area of Outstanding National Beauty (AONB)	+	
Environmentally Sensitive Area (ESA)	+	

b) Describe any other current management practices:
The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Fauna.

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

None reported

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities.

Boating and walking locally and bird watching centred on Martlesham Creek and Felixstowe Ferry. Fishing.

Facilities provided.

Moorings along the river at Woodbridge, Waldring Field, Ramsholt.

Seasonality.

Activities are predominantly undertaken during the summer especially fishing, as this is when thin-lipped grey mullet *Liza ramada* enter the estuary.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

Anon. (2002) *Suffolk Coast and Estuaries Coastal Habitat Management Plan: Executive summary*. English Nature, Peterborough (Living with the Sea LIFE Project) www.english-nature.org.uk/livingwiththesea/project_details/good_practice_guide/HabitatCRR/ENRestore/CHaMPs/SuffolkCoast/SuffolkCHaMP.pdf

Barne, JH, Robson, CF, Kaznowska, SS, Doody, JP, Davidson, NC & Buck, AL (eds.) (1998) *Coasts and seas of the United Kingdom. Region 7 South-east England: Lowestoft to Dungeness*. Joint Nature Conservation Committee, Peterborough. (Coastal Directories Series.)

Beardall, CH, Dryden, RC & Holzer, TJ (1988) *The Suffolk estuaries: a report…on the wildlife and conservation of the Suffolk estuaries*. Suffolk Wildlife Trust, Saxmundham [accompanied by separate volume, *Suffolk estuaries bibliography*]

Bratton, JH (ed.) (1991) *British Red Data Books: 3. Invertebrates other than insects*. Joint Nature Conservation Committee, Peterborough

Buck, AL (ed.) (1993) *An inventory of UK estuaries. Volume 5. Eastern England*. Joint Nature Conservation Committee, Peterborough

Burd, F (1989) *The saltmarsh survey of Great Britain. An inventory of British saltmarshes.* Nature Conservancy Council, Peterborough (Research & Survey in Nature Conservation, No. 17)

Carter, I (1994) *Departmental Brief: the Deben Estuary proposed Special Protection Area and Ramsar site (926A)*. English Nature (Ornithology Section), Peterborough

Covey, R (1998) Chapter 6. Eastern England (Bridlington to Folkestone) (MNCR Sector 6). In: *Benthic marine ecosystems of Great Britain and the north-east Atlantic*, ed. by K. Hiscock, 179-198. Joint Nature Conservation Committee, Peterborough. (Coasts and Seas of the United Kingdom. MNCR series)

Cranswick, PA, Waters, RJ, Musgrove, AJ & Pollitt, MS (1997) *The Wetland Bird Survey 1995–96: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge

Davidson, NC, Laffoley, D d'A, Doody, JP, Way, LS, Gordon, J, Key, R, Pienkowski, MW, Mitchell, R & Duff, KL (1991) *Nature conservation and estuaries in Great Britain*. Nature Conservancy Council, Peterborough

Doody, JP, Johnston, C & Smith, B (1993) *Directory of the North Sea coastal margin*. Joint Nature Conservation Committee, Peterborough

Hill, TO, Emblow, CS & Northen, KO (1996) *Marine Nature Conservation Review Sector 6. Inlets in eastern England: area summaries*. Joint Nature Conservation Committee, Peterborough (Coasts and seas of the United Kingdom. MNCR series)

McLeod, CR, Yeo, M, Brown, AE, Burn, AJ, Hopkins, JJ & Way, SF (eds.) (2004) *The Habitats Directive: selection of Special Areas of Conservation in the UK*. 2nd edn. Joint Nature Conservation Committee, Peterborough. www.jncc.gov.uk/SACselection

Musgrove, AJ, Langston, RHW, Baker, H & Ward, RM (eds.) (2003) *Estuarine waterbirds at low tide. The WeBS Low Tide Counts 1992–93 to 1998–99*. WSG/BTO/WWT/RSPB/JNCC, Thetford (International Wader Studies, No. 16)

Musgrove, AJ, Pollitt, MS, Hall, C, Hearn, RD, Holloway, SJ, Marshall, PE, Robinson, JA & Cranswick, PA (2001) *The Wetland Bird Survey 1999–2000: wildfowl and wader counts*. British Trust for Ornithology, Wildfowl and Wetlands Trust, Royal Society for the Protection of Birds & Joint Nature Conservation Committee, Slimbridge. www.wwt.org.uk/publications/default.asp?PubID=14

Pritchard, DE, Housden, SD, Mudge, GP, Galbraith, CA & Pienkowski, MW (eds.) (1992) *Important Bird Areas in the United Kingdom including the Channel Islands and the Isle of Man*. Royal Society for the Protection of Birds, Sandy

Ratcliffe, DA (ed.) (1977) *A Nature Conservation Review. The selection of biological sites of national importance to nature conservation in Britain*. Cambridge University Press (for the Natural Environment Research Council and the Nature Conservancy Council), Cambridge (2 vols.)

Stroud, DA, Chambers, D, Cook, S, Buxton, N, Fraser, B, Clement, P, Lewis, P, McLean, I, Baker, H & Whitehead, S (eds.) (2001) *The UK SPA network: its scope and content*. Joint Nature Conservation Committee, Peterborough (3 vols.) www.jncc.gov.uk/UKSPA/default.htm

Suffolk Wildlife Trust (1993) *National Vegetation Classification of the saltmarsh of the Deben, Alde–Ore and Blyth estuaries, Suffolk*. Suffolk Wildlife Trust, Saxmundham

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CITATION AS NOTIFIED ON 18 FEBRUARY 1991

COUNTY: SUFFOLK SITE NAME: DEBEN ESTUARY

DISTRICT: SUFFOLK COASTAL

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: SUFFOLK COUNTY COUNCIL, Suffolk Coastal District Council

National Grid Reference: TM 295504–TM 330378 Area: 976.0 (ha.) 2411.7 (ac.)

Ordnance Survey Sheet 1:50,000: 169 & 156 1:10,000: TM 24 NE/SE, 255E, 33NW, 34SW

Date Notified (Under 1949 Act): – Date of Last Revision: –

Date Notified (Under 1981 Act): 18.2.91 Date of Last Revision: –

Other Information:
The boundary of this site partially overlaps the boundaries of two geological SSSIs, Ferry Cliff, Sutton and Ramsholt Cliff.

Description and Reasons for Notification:
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.

The Estuary extends for over 12km in a generally south-easterly direction. It is sinuous, relatively sheltered and narrow, particularly at its mouth which is protected by shifting sand banks. Much of the intertidal area is occupied by mudflats with more sandy deposits occurring where exposed Red Crag erodes from cliffs.

The numbers of Redshank *Tringa totanus* overwintering on the Estuary are of international importance and the summer breeding population of this species is of county significance. The site is of national importance for its winter populations of Dark-bellied Brent Goose *Branta bernicla*, Shelduck *Tadorna tadorna* and Black-tailed Godwit *Limosa limosa* with the numbers of Wigeon *Anas penelope*, Pintail *Anas acuta* and Grey Plover *Pluvialis squatarola* approaching this level in some years. The Estuary supports many other species including high numbers of Dunlin *Calidris alpina*, Curlew *Numenius arquata* and Mute Swan *Cygnus olor*.

The Deben Estuary supports approximately 40% of Suffolk's area of saltmarsh which also displays the most complete range of the vegetation's community types in the county. These occur in a highly complex mosaic with the variation in the proportions

of species being dependent upon several factors including substrate type, frequency of tidal inundation, exposure, position within the Estuary and past management practices.

Low-marsh communities, which are mainly situated towards the head of the Estuary, are characterised by a vegetation dominated by Sea Aster *Aster tripolium*, Annual Seablite *Suaeda maritima*, Glasswort *Salicornia europea*, Sea Poa *Puccinellia maritima* and Sea Purslane *Halimione portulacoides*. In places, particularly where steep cliffs abut the mudflats, virtually pure stands of Common Cord-grass *Spartina anglica* occur. Where the old seawalls have been breached a saltmarsh community that is typical of formerly disturbed sites has established. This is characterised by a mosaic of Sea Poa, Sea-milkwort *Glaux maritima*, Common Sea-lavender *Limonium vulgare*, Sea Arrow-grass *Triglochin maritima* and Sea Plantain *Plantago maritima*. Varying proportions of these species are also to be found in the more typical mid-marsh communities which became prevalent towards the lower end of the Estuary. There are several areas where upper-marsh occurs, characterised by the presence of Sea Rush *Juncus maritimus*, Red Fescue *Festuca rubra*, Saltmarsh Rush *J. gerardii* and Creeping Bent *Agrostis stolonifera*.

Sea couch *Elymus pycnanthus* is mainly confined to sea walls but at the northern-most end of the site it forms extensive stands which show a natural transition to Blackthorn *Prunus spinosa* scrub on the higher ground. In addition, swamp communities occur in several places along the Estuary, usually as relatively narrow fringes but occasionally forming large stands. Such areas may be dominated by Sea Club-rush *Scirpus maritimus*, Greater Pond sedge *Carex riparia* or, most frequently, Common Reed *Phragmites australis*.

The Estuary supports three nationally scarce plant species, namely Marsh Mallow *Althaea officinalis*, Shrubby Seablite *Suaeda fruticosa* and Small Cord-grass *Spartina maritima*. The nationally rare Mollusc *Vertigo augustior* and nationally scarce *V. pusilla* have also been recorded.

APPENDIX 4

Relevant SSSI Unit Condition Tables

Report generated on: 03 Aug 2015

Main Habitat	Responsible Officer	Unit Number	Unit Id	Area (ha)	NNR Overlap Area (ha)	Latest Assessment Date	Assessment Description	Comment	Adverse Condition Reasons
DEBEN ESTUARY - SUFFOLK, (SUFFOLK COASTAL,)									
FEN, MARSH AND SWAMP - Lowland	EMMA HAY	001	1009465	9.0838	0.00	04/05/2010	Favourable	The northern end of the unit is a mosaic of reedbed, saltmarsh, brackish pools, rough grassland and scrub. wole area influenced by saltwater with grass areas dominated by common saltmarsh grass and sea couch. The southern section comprises the estuary channel, saltmarsh and reedbed. The reedbed looks like 100% Phragmites with no signs of scrub invasion. There seemed little point in taking any quadrats and in any event most of the unit was difficult and potentially dangerous to access. Comparison of aerial photographs showed a small (not significant) increase in saltmarsh	
LITTORAL SEDIMENT	EMMA HAY	002	1009467	33.5341	0.00	13/11/2009	Unfavourable - Declining	On the northern side of the unit tidal muds back straight onto the sea wall which follows the length of the whole unit. Patches of Spartina anglica are present along the base of the sea wall, with some sea purslane and sea aster present on the base of the wall itself. On the south side of site, following the line of the old sea wall, a transition from marsh (with coarse grass and rush) and common reed phragmites australis to wet woodland occurs. Large areas of mud flat are also present within this area. On the peninsula (middle of unit) transition from Spartina anglica and rush to reed phragmites australis and on higher ground, woodland. Curlew, Dunlin, Egret, Turnstone, Oyster catcher, Redshank, Shelduck all recorded feeding on mud flats. Asssessed as declining in condition due to loss of high tide roost within the unit. Tidal scour resulting from increased sea wall breaches has resulted in loss of salt marsh habitats.	OTHER - OTHER - SPECIFY IN COMMENTS,
LITTORAL SEDIMENT	EMMA HAY	003	1009468	18.1517	0.00	13/11/2009	Unfavourable - Declining	Tidal muds back straight onto the sea wall on the north side of the unit (Woodbridge town) which follows the whole unit. Patches of Spartina are present along the base of the sea wall, with some sea purslane and sea aster present on the base of the wall itself. A number of boatyards operate along the unit. On the south side of site, Spartina and purslane beds dominate edge of saltmarsh. Higher ground has coarse grass and rush growing. Agricultural land borders eastern edge of unit. Potential disturbance and management impacts include houseboats, boatyards and pontoons, as well as a number of Environment Agency sluices along the western boundary of site. Also main channel is possibly dredged for recreational sailing. No other disturbance issues noted. Curlew, Dunlin, Egret, Turnstone, Oyster catcher, Redshank, Shelduck all feeding on tidal mud. This unit is backed by a sea wall and coastal squeeze could therefore be an issue. In order to investigate coastal squeeze a study by IECS (2010 in prep.) was commissioned and this showed a 0.27 ha loss in extent of saltmarsh between 1999/00 to 2006/07 in this unit. This leads us to the conclusion that this unit is in unfavourable declining condition due to the loss of extent as a result of coastal squeeze.	COASTAL - COASTAL SQUEEZE,

LITTORAL SEDIMENT	EMMA HAY	004	1009469	24.9883	0.00	13/11/2009	Favourable	Tidal muds back straight onto the sea wall on the west side of site (Woodbridge town) which follows the whole unit. Patches of Spartina are present along the base of the sea wall, with some sea purslane, sea aster and sea beet present on the base of the wall itself. A number of boatyards and jetties operate along the NW of the unit. On south side of site, Spartina, aster and purslane beds dominate edge of saltmarsh. Behind a large creek separates this marsh from an area dominated by rush, reed and red fescue, with transition to sea couch, bramble and woodland sp. (sycamore, fir, hawthorn and field maple) forming a small tree belt on the higher ground. Agricultural land borders the eastern edge of unit, behind the tree belt. Possible dredging of main channel and a number of sluices present along the western edge of the estuary. No other management or disturbance impacts occurring. Curlew, Dunlin, Egret, Turnstone, Oyster catcher, Redshank, Shelduck all feeding on tidal mud. A study by IECS (2010 in prep.) was commissioned to investigate the change of extent in saltmarsh and this showed a 0.19ha loss in extent of saltmarsh between 1999/00 to 2006/07 in this unit.	
LITTORAL SEDIMENT	EMMA HAY	005	1009470	78.754	0.00	18/11/2009	Unfavourable - Declining	In the northeast corner of the unit an area of salt marsh is present close to the sea wall, with agricultural field abutting the marsh, gradually sloping upwards. Spartina anglica is dominant in low salt marsh while Purslane, Sea lavender and Sea arrowgrass are found on mid salt marsh. In the southeast section of the unit there are a number of deep and well established creeks with Spartina anglica dominant. The south of the unit there is a transition from saltmarsh to rush and reed and then woody scrub. Main channel is possibly dredged. No evidence of grazing or other disturbance occurring. Waders and wildfowl present within the unit. This unit is backed by a sea wall, meaning that coastal squeeze could be an issue. In order to investigate coastal squeeze a study by IECS (2010 in prep) was commissioned and this showed a 2.69ha loss in extent of saltmarsh between 1999/00 to 2006/07 in this unit. This leads us to the conclusion that this unit is in unfavourable declining condition due to the loss of extent as a result of coastal squeeze.	COASTAL - COASTAL SQUEEZE,
LITTORAL SEDIMENT	EMMA HAY	006	1009471	20.3466	0.00	03/11/2009	Unfavourable - Declining	The unit is backed along the entire shoreline by a solid sea wall, along which runs a public right of way. A small area of salt marsh is present at the eastern end of the unit where Martlesham creek enters the Deben. The marsh is dominated by mid communities containing sea purslane, sea aster, Spartina and salt marsh grass. An area of sea couch is present towards the back of the marsh where the land rises toward the footpath. Vegetation is of even height, around 20-30cm, the area is fenced and therefore there is no trampling/grazing occurring. Aside from this area of marsh, the remainder of the unit has very little vegetation at the base of the sea wall. Large patches of Spartina anglica are present along the sea wall, particularly along the northern bank of the creek. This unit is backed by a sea wall and coastal squeeze could therefore be an issue. In order to investigate coastal squeeze a study by IECS (2010 in prep) was commissioned and this showed a 0.71ha loss in extent of saltmarsh between 1999/00 to 2006/07 in this unit. This leads us to the conclusion that this unit is in unfavourable declining condition due to the loss of extent as a result of coastal squeeze.	COASTAL - COASTAL SQUEEZE,

FEN, MARSH AND SWAMP - Lowland	EMMA HAY	007	1009466	1.3422	0.00	04/05/2010	Favourable	This unit comprises reedbed fronted by a narrow fringe of saltmarsh with sea purslane and common saltmarsh grass grwing in with reeds adjacent to the estuary. There was tidal mud and patches of Spartina to seaward and rising land to landward. There is a narrow strip of oak woodland with some old oak trees and dead wood to landward. A study by IECS (2010) to assess changes in extent in saltmarsh was commissioned and this showed a 0.11ha loss in extent of saltmarsh between 1999/00 to 2006/07 in this unit. The unit is considered favourable as the loss in saltmarsh has occurred through natural processes (no sea wall). It would have been difficult and potentially dangerous to obtain quadrat data and in any event there would have been little advantage in doing so. It is unlikely that the habitat has changed in nature in the last 10 years or so and is probably still suitable for the Vertigo angustio (RDB mollusc).	
LITTORAL SEDIMENT	EMMA HAY	008	1009472	29.7304	0.00	03/11/2009	Unfavourable - Declining	Only small amounts of salt marsh present. A section of marsh in the centre of the unit contains mainly mid-level communities, with no low/pioneer level communities present. Towards the southern end is an additional area of marsh which could not be accessed. This area has many large and well-developed creeks, and is dominated by Spartina anglica. Elsewhere tidal muds back straight onto the sea wall which follows the river bank along the whole unit, in some places patches of Spartina are present along the base of the sea wall, with some sea purslane and sea aster present on the base of the wall itself. Dredging of the main river channel is likely. Enlarged creeks and steep shelf to the outer edge of the marsh suggest the marsh is eroding. No evidence of poaching or grazing, or additional human disturbance. This unit is backed by a sea wall, meaning that coastal squeeze could be an issue. In order to investigate coastal squeeze a study by IECS (2010 in prep) was commissioned to investigate change in extent of saltmarsh. This showed a 1.61ha loss in extent of saltmarsh between 1999/00 to 2006/07 in this unit. This leads us to the conclusion that this unit is in unfavourable declining condition due	COASTAL - COASTAL SQUEEZE,
LITTORAL SEDIMENT	EMMA HAY	009	1009473	74.3342	0.00	11/11/2009	Unfavourable - Declining	Salt marsh comprises mainly mid and high level communities, with a network of well-developed creeks. The marsh shelves steeply into the muds of the river bed. No pioneer communities were observed. A solid sea defence wall backs the salt marsh along the majority of the unit, although the wall has been breached towards the northern end of the unit, allowing an area of marsh to develop behind the old sea wall. This area is dominated by Spartina anglica with some sea aster and purslane, and was not accessible during the survey. Behind this habitat is a large swathe of reed bed. An area of mid level marsh which is similar to that behind the sea wall has developed extending into the river channel in the central part of the unit, but was also not accessible. A large proportion of this marsh was made up of beds of Spartina with apparently few other species present. Behind the marsh most of the land is occupied by arable farming. Dredging of the main channel is likely, no other negative impacts (trampling/grazing) noted. This unit is backed by a sea wall and coastal squeeze could therefore be an issue. In order to investigate coastal squeeze a study by IECS (2010 in prep) was commissioned to and this showed a 3.62ha loss in extent of saltmarsh between 1999/00 to 2006/07 in this unit. This leads us to the conclusion that this unit is in unfavourable declining condition due to the loss of extent as a result of	COASTAL - COASTAL SQUEEZE,

LITTORAL SEDIMENT	EMMA HAY	010	1009474	91.7807	0.00	18/11/2009	Favourable	The unit is backed by naturally rising ground with a public footpath following the river edge. In the northwest corner of the unit an area of saltmarsh is present which includes some shorter vegetation with thrift and sea plantain. South of The Hams tidal muds reach up to the river edge, with patches of Spartina, and sea beet and sea couch on higher ground. A transition from saltmarsh to reedbed to higher woodland is present on bank along northern section of the unit. Wildfowl and waders were recorded within the unit.	
LITTORAL SEDIMENT	EMMA HAY	011	1009475	47.2365	0.00	10/08/2011	Unfavourable - Declining	Waldringfield Sailing Club downstream to north of Early Creek to the south of the unit, partly backed by a small seawall/ hedged embankment with arable land beyond. Saltmarsh comprises mainly low to mid level communities, with a extensive network of creeks and salt pans. Much evidence of waders and wildfowl. Quality of the saltmarsh present was good with characteristic species. Marsh shelves into the mud of the river bed forming soft mud cliffs 1- 0.5m in height and there appears to be active erosion of the marsh frontage. Wash from boats evident and probably havng some impact. Some Spartina present. The unit is partly backed by a sea wall, meaning that coastal squeeze is an issue. The study by IECS (2010) was commissioned to investigate coastal squeeze mapped this stretch of saltmarsh. This noted that of the saltmarsh extent was mapped at 16.00ha in 2000 with a slight decrease by 2007 to 15.29ha (-0.71ha which equates to a loss of -0.10ha/yr-1). Although a lot of the saltmarsh extent remained stable (14.56ha), losses occurred on the outer marsh edge along the full extent of this Unit and along internal creek edges. This ISA concludes that the Unit is Unfavourable Declining due to coastal squeeze due to the active erosion of the saltmarsh frontage and lack of scope to respond to this by rolling back due to the seawall presence. However this seawall is fragile and has been	COASTAL - COASTAL SQUEEZE,
LITTORAL SEDIMENT	EMMA HAY	012	1009476	76.9712	0.00	08/10/2009	Unfavourable - Declining	Unit dominated by large swathes of sea aster, particularly in a band along the base of the sea wall. Cord grass is recorded as covering approximately 70% of the unit. Creeks are large and are present over around 50% of the unit area. The majority of the marsh is formed of low/mid level communities. Towards the southern end of the unit an area of reedbed is present towards the landward side of the saltmarsh behind which a soft cliff rises approximately 10m. North of this there is a transition from saltmarsh to shingle and dune. The rest of the unit is mainly backed by sea wall with a footpath running along the wall. The saltmarsh is accessible by cattle for grazing but there is no evidence of poaching on the salt marsh. Flocks of Canada geese present on the Deben. This unit is backed by a sea wall and coastal squeeze could be an issue. In order to investigate coastal squeeze a study by IECS (2010 in prep.) was commissioned and this showed a 1.41ha loss in extent of saltmarsh between 1999/00 to 2006/07 in this unit. This leads us to the conclusion that this unit is unfavourable declining due to the loss of extent as a result of coastal squeeze.	COASTAL - COASTAL SQUEEZE,

LITTORAL SEDIMENT	EMMA HAY	013	1009478	62.7937	0.00	10/08/2011	Favourable	South of Waldringfield from Early Creek downstream to Spinney Marsh. It represents the largest area of saltmarsh within the estuary. A defunct seawall runs through the middle of the site which has been breached half way down the unit and there is a large area of intertidal mud behind it. The marsh shelves inland a fairly natural manner as the ground is naturally rising. The saltmarsh in front of the seawall comprises mainly low to mid level communities, with a extensive network of creeks and pans. The quality of the saltmarsh present was good with characteristic species. The marsh shelves into the mud of the river bed forming soft mud cliffs 0.5-1.00m in height and there appears to be active erosion of the marsh frontage. Wash from boats evident and probably having some impact. Some Spartina present. The intertidal area behind the seawall showed pioneer saltmarsh developing on mud that was quite cliffed. The unit is probably an important roost site. Much evidence of waders and wildfowl. The study by IECS (2010) was commissioned to investigate coastal squeeze mapped this stretch of Saltmarsh at 31.53ha in 2000 with only minimal change in extent by 2007 to 30.87ha. Large areas of saltmarsh have remained stable (with only slight erosion mapped at the saltmarsh edge and within internal creek systems. As there has been a relatively good balance between erosion and accretion, this unit has lost only 0.66ha over the seven years averaging -0.09ha/yr-1. This ISA concludes that the Unit is in Favourable as the saltmarsh is not anthropogenically squeezed by a seawall due to the breach, intertidal habitat development and naturally rising land behind it.	
LITTORAL SEDIMENT	EMMA HAY	014	1009479	37.2574	0.00	30/06/2011	Favourable	Kirton Creek upstream to Spinney Marsh. It is partly backed by a small seawall/embankment with some large oaks, then arable land beyond. Saltmarsh comprises mainly low to mid level communities, with a extensive network of creeks and salt pans in front of the seawall. There is further saltmarsh behind the seawall also. The unit is probably an important roost site with evidence of waders and wildfowl. The quality of the saltmarsh present was good with characteristic species. The marsh shelves into the mud of the river bed forming soft mud cliffs 1- 0.5m in height and there appears to be active erosion of the marsh frontage. Wash from boats evident and probably having some impact. Some Spartina present throughout, abundant locally. The study by IECS (2010) was commissioned to investigate coastal squeeze mapped this stretch of saltmarsh. This noted that of the saltmarsh extent was mapped at the 16.68ha present in 2000, a total of 0.93ha was lost to erosion or a transition in vegetation, but 0.76ha was gained elsewhere through natural accretion resulting in a net loss of -0.17ha by 2007. This resulted in the extent in 2007 mapped as 16.51ha, averaging a -0.02ha/yr-1 over the seven years. Erosion was mapped along the leading marsh edge and some widening of creeks within the marsh structure. Encroachment from the scrub vegetation at the back of the site accounted for some loss along the landward boundary at Hemley. Areas of accretion were mainly mapped within the main saltmarsh body where creeks formerly mapped had accreted or saltpans had recolonised. There are seawalls present in the unit but these were low, and would probably have little influence on natural roll back of marsh in reaction to squeeze as that land rose naturally behind it leaving little scope, plus the breach in Unit 13 had allowed intertidal habitat development behind the seawall in Unit 14. This ISA concludes that the	

LITTORAL SEDIMENT	EMMA HAY	015	1009480	57.8211	0.00	08/10/2009	Unfavourable - Declining	At the southern end of the unit there are patches of vegetation dominated by Glasswort and Annual Sea-blite, patches of Spartina (15%) and patches of Sea Purslane all backed by sea wall. The majority of the salt marsh across the rest of the unit (95%) is low-mid marsh dominated by Sea Purslane and Saltmarsh Grass with extensive patches dominated by Cord Grass (more than 50% cover over about 50% of area). There are small areas of `pioneer marsh? (approx 5%). Approximately 10% of area of salt marsh is saltpans and 15% creeks. At the northern end of the unit there is a sand/shingle beach fronting soft cliff then rising land with scrub. There is a natural and un-interrupted transition from salt marsh to reed bed with approximately 25 metres of reed bed, 10 metres transition and 50 metres of salt marsh. Behind this there is a soft cliff/rising land with willow scrub and woodland. No evidence of dredging or other negative impacts occurring. The unit was assessed as unfavourable declining because it is backed by a sea wall and coastal squeeze may therefore be an issue.	COASTAL - COASTAL SQUEEZE,
LITTORAL SEDIMENT	EMMA HAY	016	1009481	29.8411	0.00	11/11/2009	Unfavourable - Declining	Very little salt marsh habitat is present. A solid sea wall follows the estuary edge, which is vegetated with sea beet and sea couch, and supports the coastal footpath. Salt marsh habitat is present in two distinct areas along the unit, and is composed of mid/high level communities. A few small creeks are present. The edge of the marsh shelves sharply into the mud of the estuary bed. The marsh is backed by arable land intersected by drainage ditches. No other significant negative impacts noted other than dredging of main channel if this is taking place. No obvious transitions are present within the marsh. The unit was assessed as unfavourable declining because it is backed by a sea wall and coastal squeeze may therefore be an issue.	COASTAL - COASTAL SQUEEZE,
LITTORAL SEDIMENT	EMMA HAY	017	1009482	58.9908	0.00	12/11/2009	Unfavourable - Declining	Salt marsh comprises mainly low to mid level communities, with a network of well-developed creeks and salt pans. The marsh shelves into the muds of the rive bed forming soft mud cliffs 0.5-1m in height. No pioneer communities were observed. The sea wall runs along the eastern boundary of the site with Sea beet, Sea couch, Sea wormwood and Common reed on the sea wall. Behind the sea wall is an area of reed with grazing marsh and arable land. At the northeastern end of the unit a transition occurs from saltmarsh through Phragmites australis reedbed to wooded bank. Some straight creeks are present which may have been dug out or enlarged previously, no evidence of other negative impacts. Wildfowl and waders present within the unit. Brown Hare recorded on marsh. This unit is backed by a sea wall, meaning that coastal squeeze could be an issue. In order to investigate coastal squeeze a study by IECS (2010 in prep) was commissioned and this showed a 0.36ha loss in extent of saltmarsh between 1999/00 to 2006/07 in this unit. This leads us to the conclusion that this unit is in unfavourable declining condition due to the loss of extent as a result of coastal squeeze.	COASTAL - COASTAL SQUEEZE,

LITTORAL SEDIMENT	EMMA HAY	018	1009483	54.2561	0.00	30/06/2011	Unfavourable - Declining	Boat Hard at Kirton Marshes in the north to just north of Falkenham Marshes to the south of the unit. It is backed by a seawall with a wide reedy ditch and arable land beyond. Saltmarsh comprises mainly low to mid level communities, with a extensive network of creeks and salt pans on Falkenham Creek area (an important roost site). Much evidence of waders and wildfowl. The quality of the saltmarsh present was good with characteristic species. The marsh shelves into the mud of the river bed forming soft mud cliffs 1- 0.5m in height and there appears to be active erosion of the marsh frontage. Wash from boats evident and probably having some impact. Some Spatina present. The unit is backed by a sea wall, meaning that coastal squeeze is an issue. The study by IECS (2010) was commissioned to investigate coastal squeeze mapped this stretch of saltmarsh. This noted that of the 14.41ha of saltmarsh present in the unit n 2000, a total of 0.81ha was lost to erosion, but 0.71ha was gained elsewhere through natural accretion resulting in a net loss of only -0.10ha by 2007. This resulted in the extent in 2007 being mapped at 14.31ha, averaging only a -0.01ha/yr-1 loss over the seven years. Erosion was predominantly mapped along the whole of the fronting marsh edge, and within the main body of the marsh at Falkenham Creek. Saltmarsh gains were also accounted for within the main saltmarsh extent with the narrowing of internal creek systems, recolonisation of large mud pans and areas of fragmented saltmarsh unmapped in 2000 subsequently mapped in 2007. This ISA concludes that the Unit is Unfavourable Declining due to coastal squeeze due to the active erosion of the saltmarsh frontage and lack of scope to respond to this by rolling back due to the seawall presence.	COASTAL - COASTAL SQUEEZE,
LITTORAL SEDIMENT	EMMA HAY	019	1009484	55.7065	0.00	30/06/2011	Unfavourable - Declining	Saltmarsh comprises mainly low to mid level communities, with a network of well-developed creeks and salt pans throughout. The quality of the saltmarsh was good with characteristic species. The north western edge has some Spartina anglica but not dominant as described in last CA, further Spartina anglica frequently along the seawall but not of concern. The marsh shelves into the mud of the river bed forming soft mud cliffs 1- 0.5m in height and there appears to be some active erosion, this looks dramatic from the other side of the estuary. Wash from boats evident and probably having some impact. The unit is backed by a sea wall with Saltmarsh right up to it. A study by IECS (2010) was commissioned to investigate coastal squeeze found that of the 15.94ha of saltmarsh present in 2000, a total of 0.50ha was lost to erosion, but an additional 0.28ha was gained elsewhere through natural accretion resulting in a net loss of -0.22ha by 2007, plus 15.45ha of saltmarsh remained stable throughout the seven years. This resulted in the extent mapped in 2007 at 15.72ha, averaging only a -0.03ha/yr-1 loss over the seven years. Erosion occurred along the entire marsh frontage, with some erosion of the internal marsh towards the northern end of the unit. The narrowing of creeks, both at the marsh front and within the internal body of the marsh accounts for the majority of saltmarsh gains within this unit. Changes along the landward boundary indicated a change in vegetation type. EH paced the narrowest piece of saltmasrh at ca 30m wide, the OS map (2006) shows this to be ca 50m which suggests erosion is of real concern. This ISA concludes that the Unit is still Unfavourable Declining due to coastal squeeze due to the active erosion of the	COASTAL - COASTAL SQUEEZE,

LITTORAL SEDIMENT	EMMA HAY	020	1009485	30.1027	0.00	30/06/2011	Unfavourable - Declining	Immediately upstream of Kings Fleet and its sluice. Falkenham Marshes are on the landward side behind the sea wall. The narrow strips of saltmarsh present at each end of the unit abutting the seawall tightly and comprises mainly low to mid level communities, with a limited network of creeks and salt pans. In the centre of the unit for a substantial distance there is no saltmarsh at all, however a narrow strip of pioneer saltmarsh developing was evident in places. The quality of the saltmarsh present was good with characteristic species for low to mid level communities. Higher areas were quite grassy and spartina was present throughout the unit. The marsh shelves into the mud of the river bed forming soft mud cliffs 1- 0.5m in height and there appears to be active erosion of the marsh frontage. Wash from boats evident and probably having some impact. Spartina present. The unit is backed by a sea wall, meaning that coastal squeeze is an issue. The study by IECS (2010) was commissioned to investigate coastal squeeze mapped this stretch of saltmarsh. This noted that the saltmarsh lay in two distinct blocks, one to the north adjacent to Red House Farm and the second to the south adjacent to Falkenham Marshes. The saltmarsh within these two areas had remained generally stable with a total of 3.06ha mapped in 2000, with only a 0.26ha loss resulting in 2.80ha in 2007. Of this, 2.70ha remained stable throughout the seven years, with 0.37ha lost and 0.10ha gained by natural accretion throughout the unit. This ISA concludes that the Unit is Unfavourable Declining due to coastal squeeze due to the active erosion of the saltmarsh frontage and lack of scope to	COASTAL - COASTAL SQUEEZE,
LITTORAL SEDIMENT	EMMA HAY	021	1009486	40.6236	0.00	30/06/2011	Unfavourable - Declining	Saltmarsh present comprises mainly low to mid level communities, with a network of well-developed creeks (some large) and salt pans throughout the unit. The quality of the saltmarsh was good with characteristic species for low to mid level communities, plus much thrift, wormwood, sea lavender, etc, on the higher areas. There was frequent Spartina anglica but not dominant or of concern. The marsh shelves into the mud of the river bed forming soft mud cliffs 1- 0.5m in height and there appears to be some active erosion, this looks dramatic from the other side of the estuary. There was small areas of pioneer saltmarsh at the southern end of site by the concrete blocks. Wash from boats evident and probably having some impact. The study by IECS (2010) was commissioned to investigate coastal squeeze found that of the 13.95ha of saltmarsh present in 2000, a total of 0.49ha was lost to erosion, but an additional 0.52ha was gained through natural accretion resulting in a net gain of +0.03ha by 2007. The majority of this saltmarsh gain was mapped at the south of the unit adjacent to the amenity area off Ferry Road. Some erosion of the fronting marsh had occurred along the whole length of the unit with losses and gains to the internal marsh. This resulted in the extent mapped in 2007 at 13.98ha, averaging a +0.004ha/yr-1 gain over the seven years. This ISA concludes that the Unit is still Unfavourable Declining condition due to coastal squeeze due to the active erosion of the saltmarsh frontage and lack of scope to respond to this by rolling back due to the seawall presence. Intertidal sand bars	COASTAL - COASTAL SQUEEZE,

LITTORAL SEDIMENT	EMMA HAY	022	1009487	47.4327	0.00	30/06/2011	Unfavourable - Declining	Immediately upstream of Felixstowe Ferry and south of Kings Fleet and its sluice and runs south east to north west along the sea wall. The saltmarsh present comprises mainly low to mid level communities, with a network of well-developed creeks and salt pans throughout the unit. The presence of the creeks means that the saltings are inaccessible without a boat/crossing equipment, so the saltmarsh was surveyed from the seawall using binoculars. Unit abuts a busy boat yard and there are a number of houseboats/barges moored on the saltings along with some abandoned wrecks (see photos). The quality of the saltmarsh was good with characteristic species for low to mid level communities. The marsh shelves into the mud of the river bed forming soft mud cliffs 1- 0.5m in height and there appears to be some active erosion. Wash from boats evident and probably having some impact. The study by IECS (2010) was commissioned to investigate coastal squeeze mapped this stretch of saltmarsh at 13.44ha in 2000, experiencing a loss of -0.18ha resulting in an extent of 13.27ha by 2007. Although a lot of the saltmarsh extent remained stable (12.70ha) between the seven years, losses occurred at the outer marsh edge along the full extent of this Unit and along the landward edge of the saltmarsh. Losses and gains were also mapped in the internal saltmarsh body mainly at the northern end of this unit with mudpans recolonising or areas experiencing erosion. This ISA concludes that the Unit is Unfavourable Declining due to coastal squeeze due to the active erosion of the saltmarsh frontage and lack of scope to respond to this by rolling back due to the seawall presence. Intertidal sand bars are very dynamic in the Woodbridge Haven area and these coastal processes are likely to influence	COASTAL - COASTAL SQUEEZE,

APPENDIX 5

Illustrative Framework and Masterplan

- Application Boundary - 12.67 ha
- Proposed Residential Development - 7.70 ha
  - A - 4.01 ha
  - B - 2.80 ha
  - C - 0.89 ha
- Proposed Convenience Store - 400 m2 unit (Gross) (0.1ha including parking/services)
- Existing Vegetation/ Hedgerows
- Existing Dry stream (5m Easement)
- Proposed Footpath
- Proposed Structural Planting - 1.26 ha
- Proposed Indicative Vehicular Access Route
- Proposed Attenuation Basin - 0.20 ha
- Proposed Site Access
- Informal Open Space - 3.16 ha (including easement)
- Children's Playing Space - 0.25 ha (including 0.04ha equipped play area)
- Proposed Easement Route

0 50 100 150 200m

N

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Gladman Developments Ltd
Land off Duke's Park
Woodbridge

DEVELOPMENT FRAMEWORK

1:2000@A1
18 November 2015
6106-L-01 rev P

fpcr
masterplanning
environmental assessment
landscape design
urban design
ecology
architecture
arboriculture

FPCR Environment and Design Ltd
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APPENDIX 6

Correspondence received from Natural England

Date: 01 May 2015
Our ref: DAS/1420
Your ref: 6106E

Nick Law
Senior Ecologist
FPCR Environment and Design Ltd
Lockington Hall
Lockington
Derby DE74 2RH

Customer Services
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Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

0300 060 3900

BY EMAIL ONLY

Dear Mr Law

Discretionary Advice Service (Charged Advice)

Contract Reference DAS/8180/135637
Development proposal and location: Land South of Ipswich Road and east of Top Street, Woodbridge, Suffolk

Thank you for your consultation on the above. This advice is being provided as part of Natural England's Discretionary Advice Service. FPCR Environment and Design Ltd has asked Natural England to review their draft Habitat Regulations Assessment for the above proposal. This is in accordance with the Quotation and Agreement dated 19 November 2014, and is based on the information provided in the e-mail dated 19th March 2015.

Protected sites
Deben Estuary Special Protection Area, Ramsar Site, Site of Special Scientific Interest

A draft HRA has been produced which considers the issues raised by Natural England in our earlier initial advice letter of 23rd July 2014 (appended to the HRA) These issues are primarily in relation to the potential for recreational disturbance to estuary birds as a result of the new housing development, which is within walking and driving distance of the estuary.

The HRA assesses the likely number of residents and where they are likely to travel to within the designated site. The report also considers in combination impacts with other developments in close proximity. A number of measures are proposed to reduce and mitigate the identified potential recreational disturbance impacts.

Number of dogs and households
The HRA states that the development would result in an additional 338 people in up to 215 households. These figure are used to generate a figure of around 50 additional dog owners, which is derived using national statistics for dog ownership. It is concluded that as this represents 0.13% additional population in the district, that it would result in 0.13% more visits to the estuary. Based on this analysis it is concluded that this could equate to an additional 10 visits per day to the estuary. Given the close proximity of the site to the estuary compared to other developments in the district (0.5km in places), and the potential for each dog to need walking once or twice per day, it is Natural England's advice that this may represent an under estimate and that 50 dogs might generate the need for between 50 and 100 walks per day (potentially to the nearby SPA). In addition, there is other recreational activity such as walking and cycling which might result in further recreational disturbance.

Walking Distance from the estuary
While the SCDC Core Strategy used a 1km separation from the estuary for housing allocations as a mechanism to reduce recreational disturbance from walking, it does not follow that this separation results in no recreational disturbance. Various studies looking into the distance people are likely to walk suggest distances of between 1.6km and 2.9Km, and a study cited in the HRA (Fearnley & Liley 2014) suggests an average walking distance of 2.6Km , a distance which could bring walkers onto the SPA. For this reason, the conclusion at section 3.33 that a distance of 1km would prevent regular walks should be revisited.

Accessibility for Car Visitors
The HRA examines which car parks are likely to be visited and where visitors are likely to go once they have arrived at these. Several local car parks are described and their use is analysed. Walking distances on local routes are discussed, but these should be reviewed, in the light of our comments above.

Use of path along south shore of Martlesham Creek.
Although much of this route is screened by scrub, there are also open areas, and the potential for dogs off leads to cause disturbance to birds at the head of the creek, and beyond. For this reason the potential for bird disturbance as a result of use of this route should be considered further.

Use of Martlesham Creek by Black Tailed Godwit
Although not an SPA feature, the HRA helpfully discusses disturbance to Black tailed godwit. Martlesham creek is known to be an important area for this species on the estuary, and it would be helpful to further examine the potential for disturbance to roosting or feeding birds here in order to evaluate potential impacts on the SSSI.

Mitigation Measures

Accessibility of sandy lane
There is currently ready access to within 0.5Km of the estuary via sandy lane. Mitigation of recreational impact relies to a great extent on removing this access point and it is stated that this can be achieved by fencing and enhancing the hedgerow. Further details should be provided on the feasibility of securing this boundary in the long term, and how the potential for breaches would be monitored and managed to ensure the effectiveness of this mitigation measure.

Alternative access provision
Mitigation measures include the provision of 1.7km of footpaths and features and facilities to encourage dog walking within the site. While these are helpful measures, given an average walking distance of around 2.6Km, it would be helpful to explore how the routes provided within the development might connect to the existing RoW network in order to provide more substantial walking opportunities.

It will also be necessary to quantify the likely recreational requirement (numbers of dog walks/day) and to specify how this volume of recreational activity would be mitigated by the alternative access provisions. Details of any residual impact and how the effectiveness of mitigation measures would be monitored should also be included in the HRA. Commitments to provide financial contribution to visitor management and wardening to augment those in the core strategy are welcomed.

In combination
While the HRA considers several local developments, impacts in combination with the Core Strategy allocations are not considered. It is likely that these allocations will result in additional recreational pressure at the same access points as this development, and for this reason an in combination assessment is necessary. It is possible that these are the kinds of impacts which could be addressed by contributions to wardening and visitor management.

In conclusion, Natural England is currently not satisfied, on the basis of the objective information which has so far been provided, that it can be excluded that the proposed plan or project will have a

significant effect on the Deben Estuary SPA/Ramsar, either individually or in combination with other plans or projects. Furthermore, Natural England is not yet satisfied that the proposed operations are not likely to damage any of the interest features of the Deben Estuary SSSI.

Natural England therefore requests that additional information is provided, as described above, in order to address these current uncertainties.

For clarification of any points in this letter, please contact John Jackson on 0300 060 1979.

This letter concludes Natural England's Advice within the Quotation and Agreement dated 19 November 2014.

The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours sincerely

John Jackson
Lead Adviser
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Annex 1
European Protected Species

A licence is required in order to carry out any works that involve certain activities such as capturing the animals, disturbance, or damaging or destroying their resting or breeding places. Note that damage or destruction of a breeding site or resting place is an absolute offence and unless the offences can be avoided (e.g. by timing the works appropriately), it should be licensed. In the first instance it is for the developer to decide whether a species licence will be needed. The developer may need to engage specialist advice in making this decision. A licence may be needed to carry out mitigation work as well as for impacts directly connected with a development. Further information can be found in Natural England's 'How to get a licence' publication.

If the application requires planning permission, it is for the local planning authority to consider whether the permission would offend against Article 12(1) of the Habitats Directive, and if so, whether the application would be likely to receive a licence. This should be based on the advice Natural England provides at formal consultation on the likely impacts on favourable conservation status and Natural England's guidance on how the three tests (no alternative solutions, imperative reasons of overriding public interest and maintenance of favourable conservation status) are applied when considering licence applications.

Natural England's pre-submission Screening Service can screen application drafts prior to formal submission, whether or not the relevant planning permission is already in place. Screening will help applicants by making an assessment of whether the draft application is likely to meet licensing requirements, and, if necessary, provide specific guidance on how to address any shortfalls. The advice should help developers and ecological consultants to better manage the risks or costs they may face in having to wait until the formal submission stage after planning permission is secured, or in responding to requests for further information following an initial formal application.

The service will be available for new applications, resubmissions or modifications – depending on customer requirements. More information can be found on Natural England's website.

Date: 23 July 2014
Our ref: DAS 8180/124195
Your ref: Land Adjacent to Duke's Park, Woodbridge

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

0300 060 3900

Nick Law,
FPCR Environment & Design Ltd
Lockington Hall
Lockington
Derbyshire
DE74 2RH

BY EMAIL ONLY

Dear Nick

Discretionary Advice Service (Charged Advice)
Contract Reference DAS/8180/124195

Development proposal and location: Land Adjacent to Duke's park, Woodbridge

Thank you for your consultation on the above. This advice is being provided as part of Natural England's Discretionary Advice Service. FPCR Environment & Design Ltd has asked Natural England to provide advice on:

- Natural England's local knowledge of designated site ecology, processes, local policy, etc.
- Potential impacts on designated or proposed designated sites
- The scope of green infrastructure and/or priority habitat delivery
- Information for a draft habitats regulations assessment
- Specific advice on the provision of suitable alternative natural greenspace.

This advice is provided in accordance with the Quotation and Agreement dated 24 June 2014.

Designated Sites
This proposal is close to the Deben Estuary Site of Special Scientific Interest (SSSI), Special Protection Area (SPA), and wetland of international importance under the Ramsar Convention (Ramsar Site). The estuary supports a range of habitat and species features, in particular several species of wintering waders and waterfowl which occur in nationally and internationally important numbers in winter.

Potential Impacts of the proposals
The proposal could potentially result in recreational disturbance impacts on habitats and species as a result of increased numbers of people living in the area and visiting the Deben Estuary. There are already concerns about the impact of recreational disturbance on the Deben Estuary, and this proposal provides potential to increase recreational disturbance impacts on wintering birds protected under the SPA, Ramsar Site and SSSI designations. The bird species protected under the SPA notification are Brent Goose and Avocet, and in addition, wintering Redshank, Shelduck and Black Tailed Godwit are features of the SSSI. Martlesham Creek is known to be an important area for Black Tailed Godwit. Birds are sensitive to disturbance by recreational walkers, cyclists etc., and in particular to dogs off leads. Further background can be found in a local study which looks into

these issues in detail on the Stour and Orwell Estuaries: http://www.suffolkcoastandheaths.org/assets/Projects--Partnerships/Stour--Orwell/Recreation-Disturbance-Report-Final-low-quality.pdf.

Recreational disturbance issues (and potential mitigation measures) are also explored in detail for the Deben in a more recent Suffolk Wildlife Trust Report; http://www.suffolkcoastandheaths.org/assets/Projects--Partnerships/DEP/Deben-Bird-Report-Web.pdf.

Information for a draft habitat regulations assessment

The HRA should examine potential recreational disturbance impacts on the Deben Estuary SPA against the site's conservation objectives (http://www.naturalengland.org.uk/images/uk9009261-deben-estuary-spa_tcm6-32224.pdf), alone and in combination with other plans or projects. It is Natural England's advice that the RAMSAR Feature *Vertigo angustior* (Narrow Mouthed Whorl Snail) is not likely to be affected by these proposals.

A number of significant housing proposals have been put forward in Suffolk Coastal District Council's Core Strategy, and several additional housing proposals close to the Deben Estuary have also been made since the Core Strategy was completed. The HRA should consider in-combination and cumulative impacts in relation to these proposals, with particular reference to the HRA of the SCDC Core Strategy. Other relevant studies on recreational disturbance have been conducted around the country and these may also provide helpful examples of methods and best practice.

The HRA should assess existing (and forecast) recreational disturbance levels in the parts of the SPA likely to be affected by recreational disturbance from the development (areas of the SPA within walking and cycling distance and car parks likely to be used by new residents). Of particular concern are regular dog walkers, as it is known that dogs off leads can cause considerable disturbance to wintering birds if they run onto the foreshore.

The HRA should also consider the distribution of wintering birds on the estuary, either through a review of existing survey information (such as Wetland Bird Survey data, existing reports, and information from local bird recorders), or if necessary, through bespoke surveys to assess bird usage. Bird hot spots such as important roosting or feeding areas should be identified and taken into consideration in this work.

There are a number of mitigation measures which could potentially be considered as part of the HRA. These include the provision of alternative green space (see next section), and other measures such as local habitat management (for example screening of sensitive areas), the provision of interpretation in the form of signs and leaflets, and wardening. Should mitigation be required, then the HRA should also set out a process for monitoring and review, indicating triggers and adjustments which might be taken to ensure full effectiveness.

Specific advice on SANGs

One potential mitigation approach for recreational disturbance impacts is the provision of alternative areas of green space which are attractive and convenient for regular activities such as local walks and dog walking. Such areas should be attractive and convenient and provide a real alternative to other routes on the SPA. Ideally they could be linked to existing Rights of Way (where these take people away from the designated site), and provide facilities such as a way marked circular route, dog bins, and in particular area where dogs can be exercised off leads. They might also be designed to encourage people away from the SPA and into other areas. The amount and scale of such proposals would depend on the forecast recreational impact, and would need to demonstrably account for additional recreational pressure. Proposals would also need to take account of the natural draw of the estuary as an attractive walking area, and consider how any residual impact would be mitigated.

The scope of Green Infrastructure and/or Priority Habitat delivery
The proposed development is within an area that Natural England considers could benefit from enhanced green infrastructure (GI) provision. Multi-functional green infrastructure can perform a range of functions including improved flood risk management, provision of accessible green space, climate change adaptation and biodiversity enhancement. Evidence and advice on green infrastructure, including the economic benefits of GI can be found on the Natural England Green Infrastructure web pages.

In this case, GI and priority habitat delivery could also make significant contributions to mitigating against recreational disturbance impacts, as described above.

Overall, Natural England is currently not satisfied, on the basis of the objective information which has so far been provided, that it can be excluded that the proposed plan or project will have a significant effect on the Deben Estuary SPA/Ramsar, either individually or in combination with other plans or projects. Furthermore, Natural England is not yet satisfied that the proposed operations are not likely to damage any of the interest features of the Deben Estuary SSSI.

Natural England therefore requests that additional information is provided along the lines of that described above, in order to address these current uncertainties.

For clarification of any points in this letter, please contact John Jackson on 0300 060 1979

This letter concludes Natural England's Advice within the Quotation and Agreement dated 24 June 2014.

Senior adviser to QA letter and check box below
☐ The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours sincerely

John Jackson
Norfolk & Suffolk Team
Cc commercialservices@naturalengland.org.uk

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APPENDIX 7

SWT Trading report ‘Table 1’

Table 1 Current status and importance of birds using the Deben Estuary

International Importance

Species	BoCC Status	Mean nos of birds on estuary between 2000/1 and 2004/5	Mean nos of birds on estuary between 2006/7 and 2010/11	Qualifying international threshold
Black-tailed Godwit	Red	248	680	*610*

National Importance

Species	BoCC Status	Mean nos of birds on estuary between 2000/1 and 2004/5	Mean nos of birds on estuary between 2006/7 and 2010/11	Qualifying UK threshold
Dark-bellied Brent Goose	Amber	1915	1463	*910*
Shelduck	Amber	799	649	*610*
Little Egret	Amber	n/a	49	*45*
Avocet	Amber	241	299	*75*
Grey Plover	Amber	537	485	*430*
Redshank	Amber	2095	2140	*1200*

Other Species Noted in Significant Numbers:

Species	BoCC Status	Mean nos of birds on estuary between Jan 2010 and Dec 2012	Max nos of birds on estuary between Jan 2010 and Dec 2012	Qualifying UK threshold
Bar-tailed Godwit	Amber	41	102 (Feb 2012)	*380*
Curlew	Amber	768	1032 (Oct 2011)	*1400*
Dunlin	Red	2919	3670 (Dec 2011)	*3500*
Golden Plover	Amber	n/a	3813 (6449 in 2010/11)	*4000*
Knot	Amber	130	223 (Jan 2012)	*3200*
Lapwing	Red	2681	4478 (Jan 2011)	*6200*
Little Grebe	Amber	68	102 (Feb 2012)	*160*
Pintail	Amber	102	176 (Jan 2011)	*290*

APPENDIX 8

Extracts from SWT Trading report

Figure 7: Map Indicating Sensitive Areas for Bird Disturbance

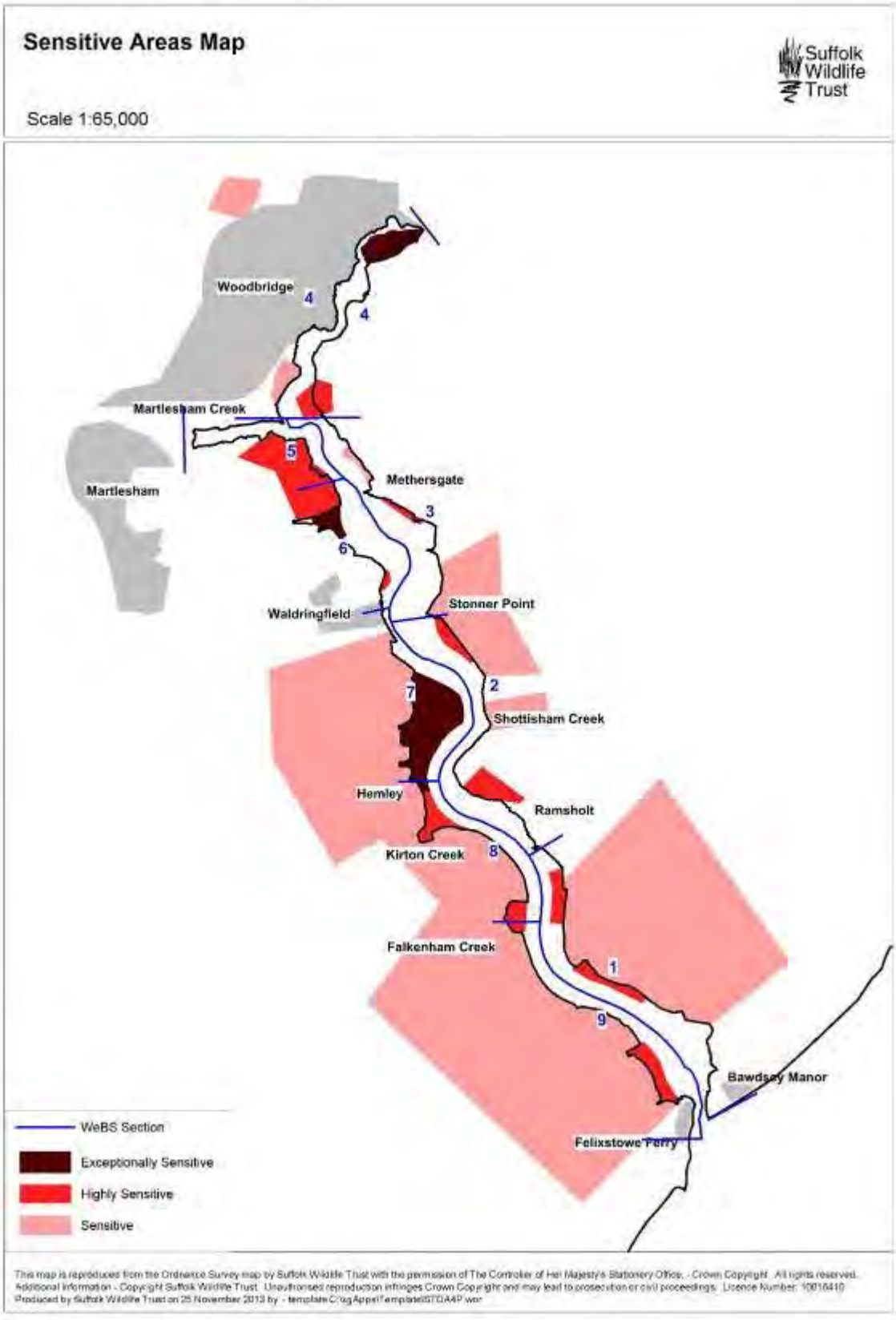


Figure 14: Key Roosting Areas: Avocet

Figure 15: Key Roosting Areas: Black-Tailed Godwit

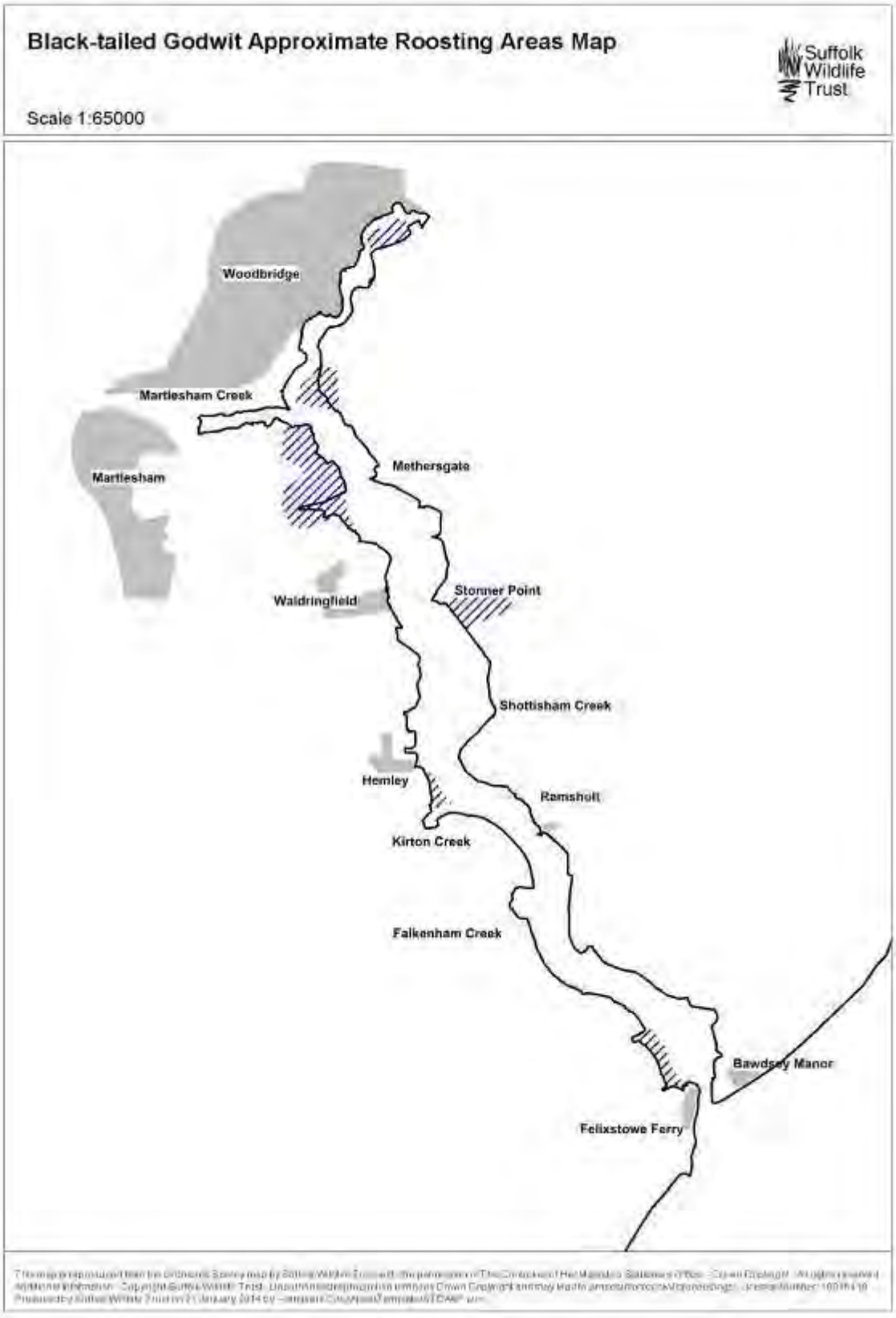


Figure 16: Key Roosting Areas: Dark-Bellied Brent Goose

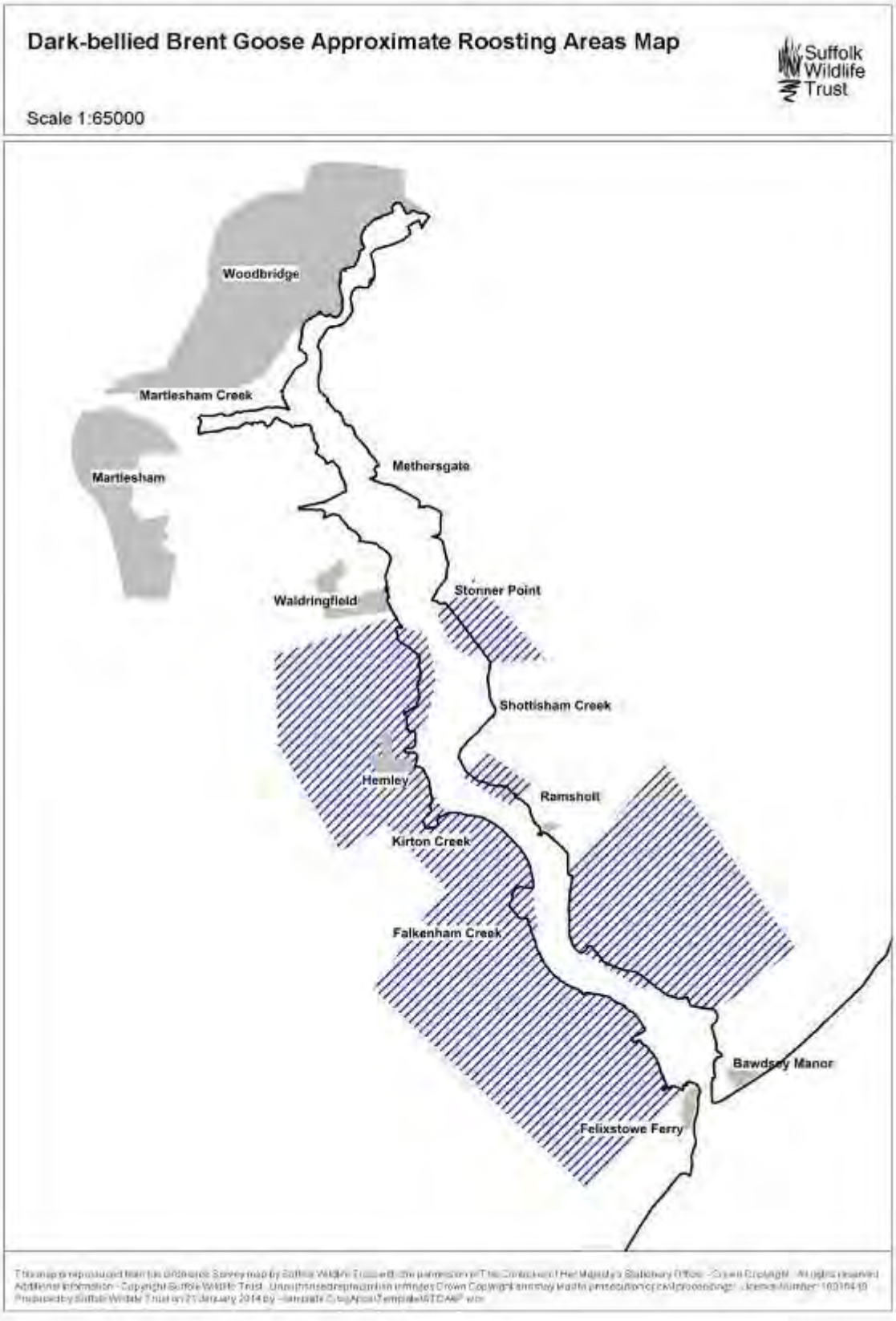


Figure 18: Key Roosting Areas: Redshank

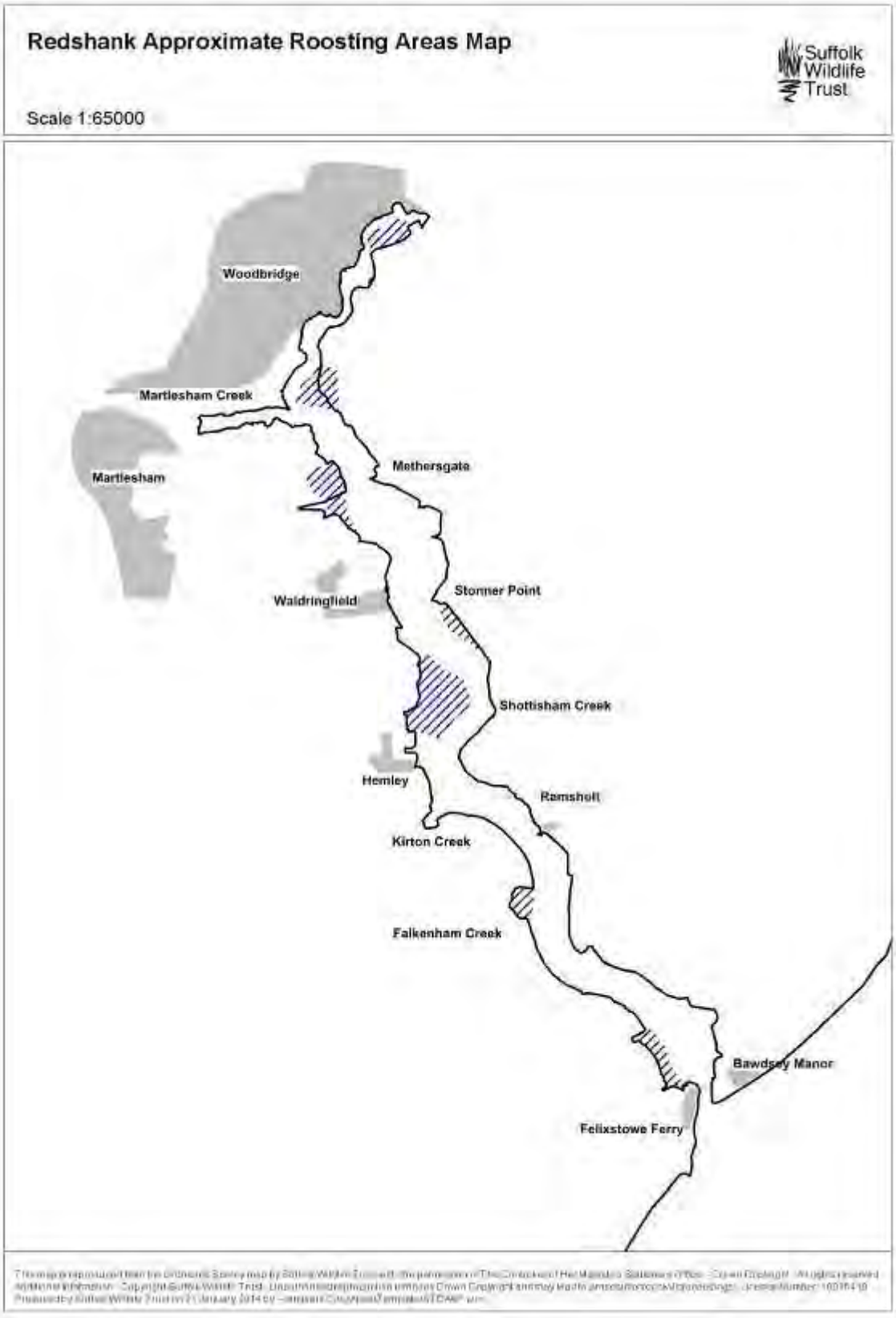


Figure 19: Key Roosting Areas: Shelduck

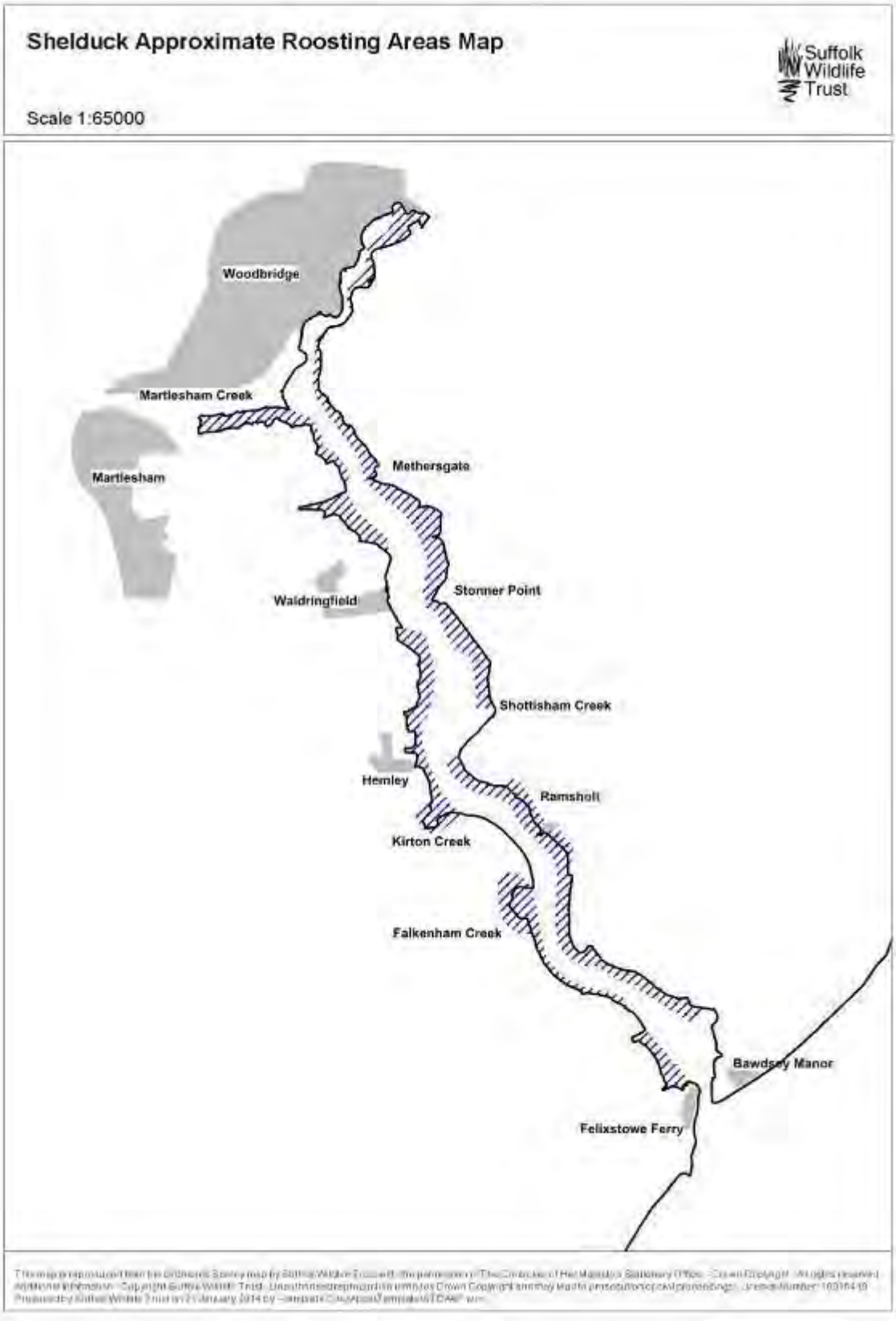


Figure 20: Key Feeding Areas: Avocet

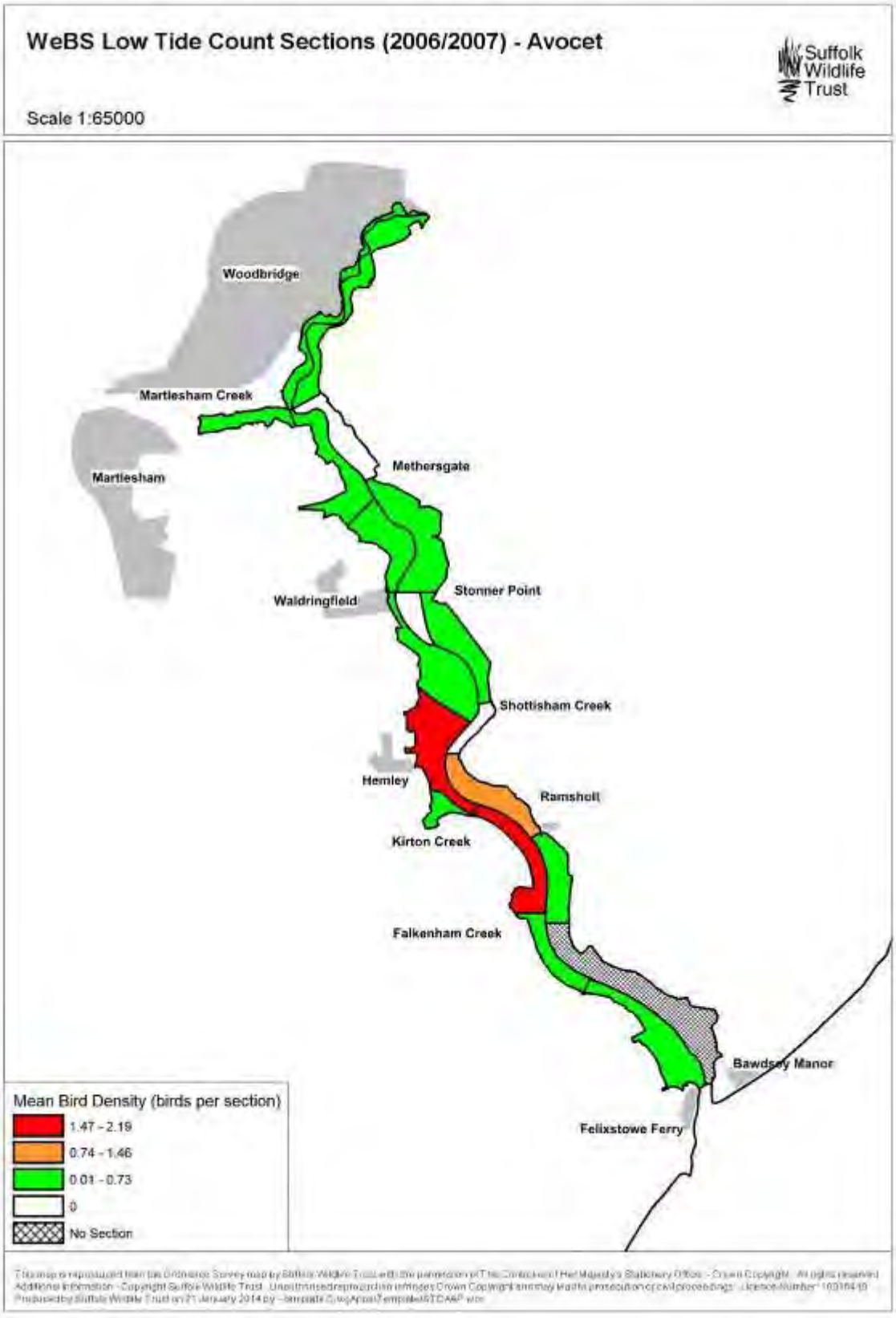


Figure 21: Key Feeding Areas: Black Tailed Godwit

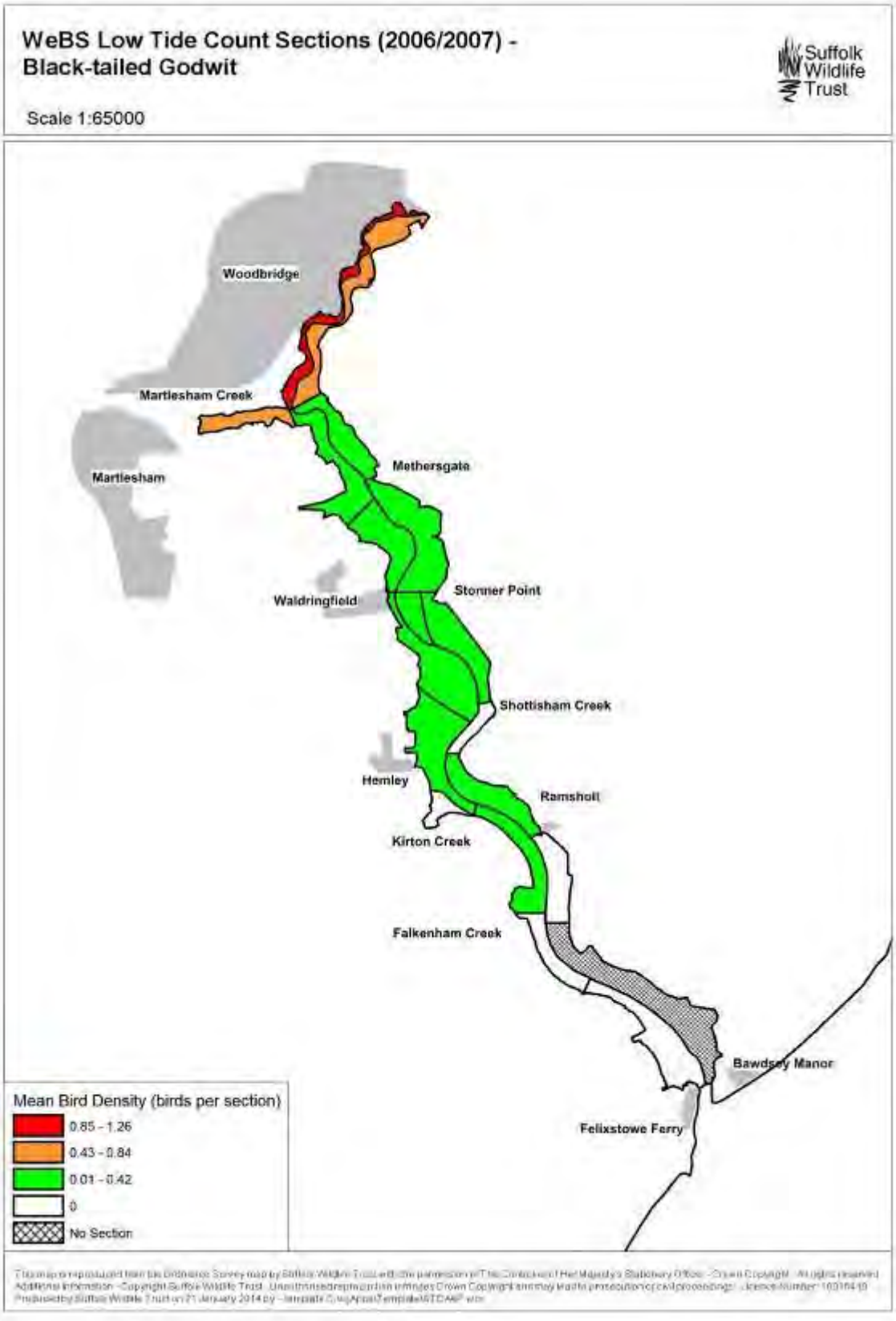


Figure 22: Key Feeding Areas: Dark Bellied Brent Goose

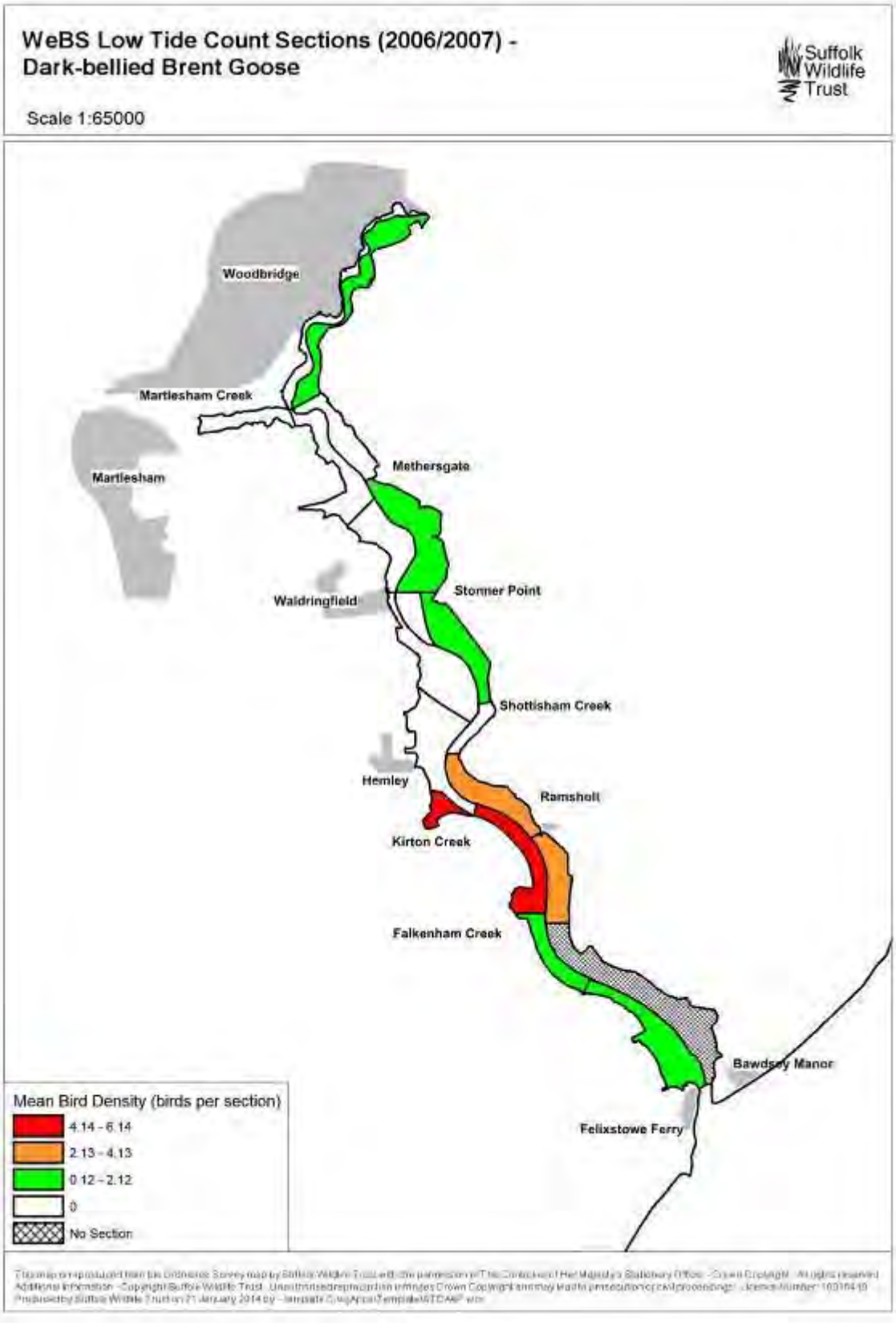


Figure 24: Key Feeding Areas: Redshank

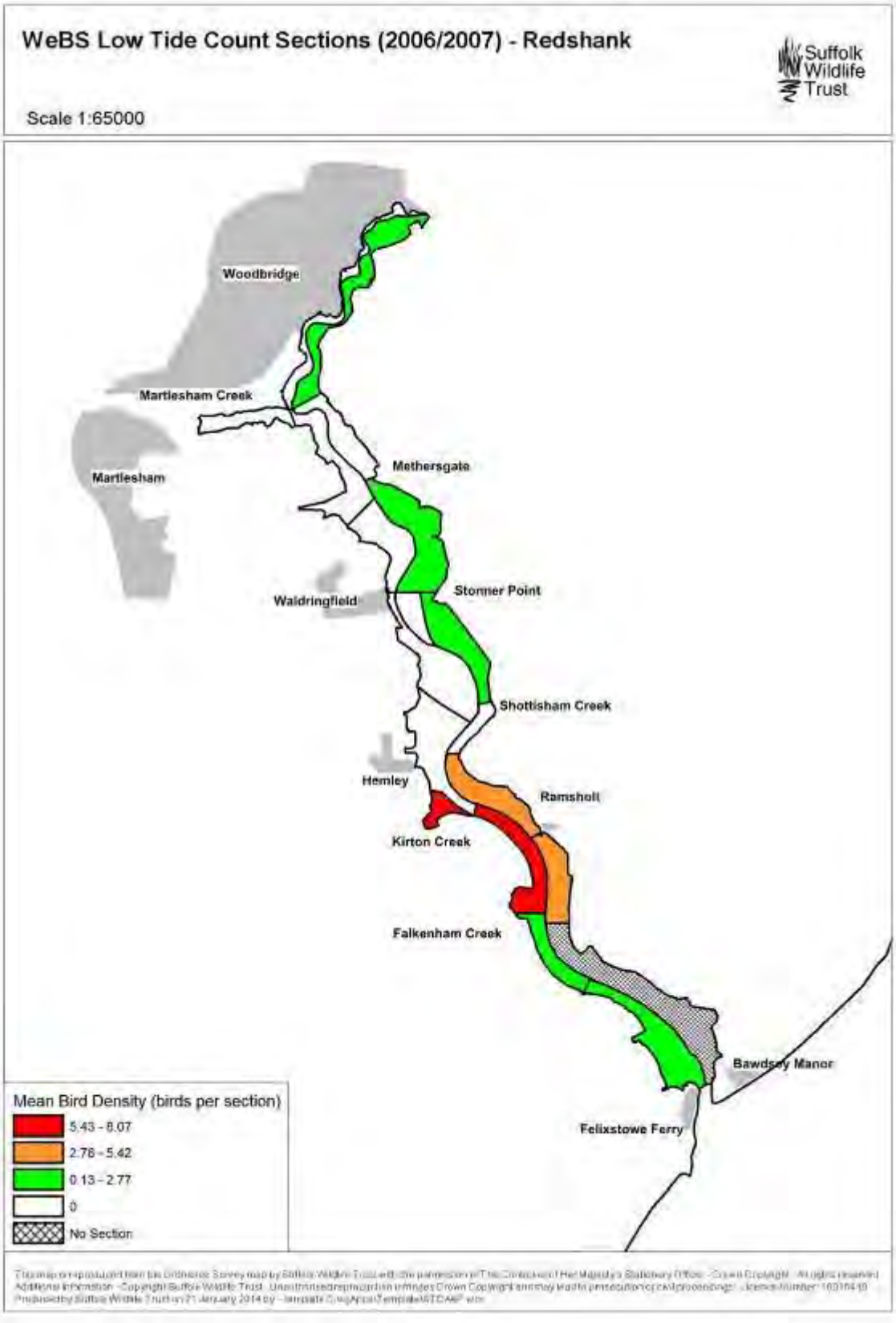
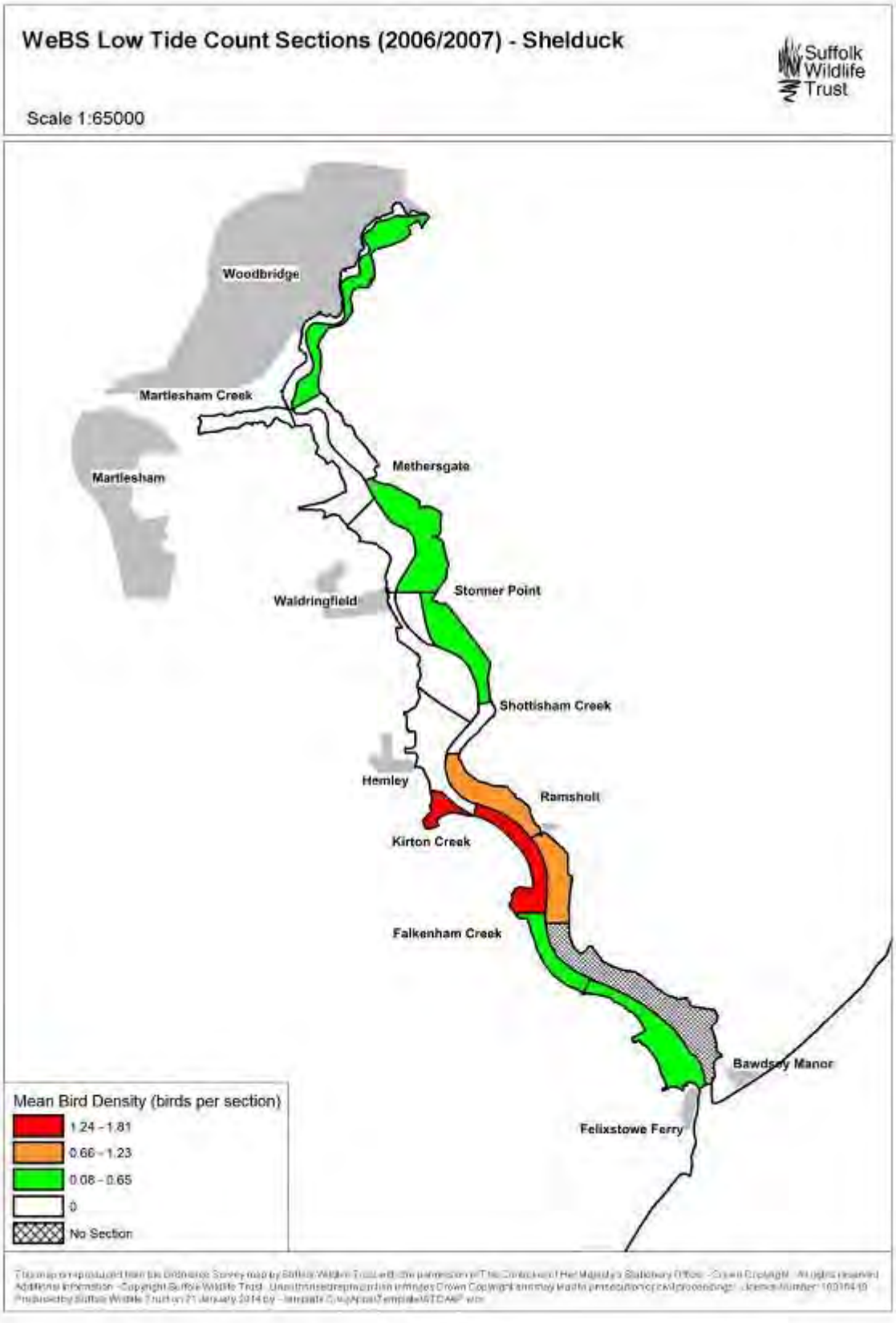


Figure 25: Key Feeding Areas: Shelduck



Appendix 7.4:
Arboricultural Assessment

Gladman Developments Ltd

Land off Duke's Park, Woodbridge

Arboricultural Assessment

November 2015

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FPCR Environment and Design Ltd
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Rev	Issue Status	Prepared / Date	Approved/Date
-	Draft	SLK / 02.04.2014	DS / 06.08.2014
-	Final	DS / 02.11.2015	TJR / 04.11.2015
A	Revision	DS / 16.11.2015	DS / 16.11.2015

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FIGURES

APPENDICES

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1.0 INTRODUCTION

1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Gladman Developments Limited to present the findings of an arboricultural assessment and survey of trees located on Land off Duke's Park, Woodbridge (hereafter referred to as the site), Grid Ref TM 257 477 as shown in Figure 1. The survey was carried out on 28th February 2014.

1.2 The tree survey and assessment of existing trees has been carried out in accordance with British Standard 5837:2012 *'Trees in Relation to Design, Demolition and Construction - Recommendations'* (hereafter referred to as BS5837). The guidelines give recommendations on the relationship between trees and design, demolition and construction processes to achieve a harmonious and sustainable relationship between trees and structures.

1.3 The purpose of the report is to present the results of an assessment of the existing trees' arboricultural value, based on their current condition and quality in accordance with the recommendations, to accompany a planning application for a residential development. The tree survey has therefore focused on any trees present within or bordering the site that may potentially be affected by the future proposals or will pose a constraint to any proposed development.

1.4 The site is located to the south west of Woodbridge, and immediately west of Sandy Lane. The residential area of Woodbridge adjoins onto the north western boundary, and a railway line forms the southern boundary. Top Street and (B1348) Ipswich Road are positioned to the east and north of the site.

1.5 The site consists of four agricultural field parcels separated by hedgerows, ditches, and steep banks. The largest fields formed the northern, eastern and southern section of the site and had been used for arable cultivation; however, they were not in use for agricultural purposes at the time of the assessment. Contained within the smaller fields, located to the west of the site, was an open storage facility for disused cars and container units.

1.6 The site contained only a few trees situated within the field boundaries with English oak *Quercus robur,* and English holly *Ilex aquifolium* being the most dominant. The majority of the surveyed tree stock was located offsite within the adjacent residential gardens and railway embankment. These comprised of a higher diversity of species but English oak was still the most commonly recorded tree within the assessment.

1.7 Following consultation with the Local Planning Authority, Suffolk Coastal District Council, it is understood that there is a Tree Preservation Order, namely No: 78 Dukes Hill, Martlesham (1967), which applies to a number of trees present on the edge of the assessment site and therefore statutory constraints apply to the eastern boundary of the proposed development in respect of trees. A plan detailing trees covered by the TPO has been included within the report as Appendix C and further details are given in Section 4.

1.8 The report comprises:

- Chapter 1 provides an introduction to the assessment work, its purpose and background details.
- Chapter 2 briefly describes the methodology by which the tree survey and assessment has been undertaken.

- Chapter 3 presents a summary of the results of the tree survey.
- Chapter 4 evaluates the findings of the survey and assessment in respect of the development proposals in the form of an Arboricultural Impact Assessment and also provides principal recommendations for mitigation planting and specific tree protection measures including pruning.
- Chapter 5 presents an indication of the tree protection measures to be required from a general viewpoint such as typical fencing requirements.
- Chapter 6 provides a conclusion to the findings of the assessment.

1.9 It must be understood should any specific tree protection be required, this would need to be separately considered where needs arise prior to the commencement of construction activity following approval. This would be in the form of an arboricultural method statement produced in accordance with guidance in BS5837 and is beyond the scope of this arboricultural assessment.

2.0 METHODOLOGY

2.1 The survey of trees has been carried out in accordance with the criteria set out in Chapter 4 of BS5837. The survey has been undertaken by a suitably qualified and experienced arboriculturist and recorded information relating to all those trees within the site and those adjacent to the site which may be of influence to any proposals. Trees were assessed for their arboricultural quality and benefits within the context of the proposed development in a transparent, understandable and systematic way.

2.2 Trees have been assessed as groups or woodlands where it has been determined appropriate. The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture. An assessment of individual trees within the groups or woodlands has been made where there has been a clear need to differentiate between them for example, in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

2.3 Trees have been divided into one of four categories based on Table 1 of BS5837, *'Cascade chart for tree quality assessment'*. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below). Category U trees are those which would be lost in the short term for reasons connected with their physiology or structural condition. They are, for this reason not considered in the planning process on arboricultural grounds. Categories A, B & C are applied to trees that should be of material considerations in the development process. Each category also having one of three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural or conservation values accordingly.

2.4 **Category (U) – (Red):** Trees which are unsuitable for retention and are in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. Trees within this category are:

- Trees that have a serious irremediable structural defect such that their early loss is expected due to collapse and includes trees that will become unviable after removal of other category U trees.

- Trees that are dead or are showing signs of significant, immediate or irreversible overall decline.
- Trees that are infected with pathogens of significance to the health and/ or safety of other nearby trees or are very low quality trees suppressing adjacent trees of better quality.
- Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.

2.5 **Category (A) – (Green):** Trees that are considered for retention and are of high quality with an estimated remaining life expectancy of at least 40 years and with potential to make a lasting contribution. Such trees may comprise:

- Sub category (i) trees that are particularly good examples of their species, especially if rare or unusual, or are essential components of groups such as formal or semi-formal arboricultural features for example the dominant and/or principal trees within an avenue.
- Sub category (ii) trees, groups or woodlands of particular visual importance as arboricultural and / or landscape features.
- Sub category (iii) trees, groups or woodlands of significant conservation, historical, commemorative or other value for example veteran or wood pasture.

2.6 **Category (B) – (Blue):** Trees that are considered for retention and are of moderate quality with an estimated remaining life expectancy of at least 20 years and with potential to make a significant contribution. Such trees may comprise:

- Sub category (i) trees that might be included in category A but are downgraded because of impaired condition for example the presence of significant though remediable defects, including unsympathetic past management and storm damage.
- Sub category (ii) trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.
- Sub category (iii) trees with material conservation or other cultural value.

2.7 **Category (C) – (Grey):** Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:

- Sub category (i) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
- Sub category (ii) trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value or trees offering low or only temporary / transient screening benefits.
- Sub category (iii) trees with no material conservation or other cultural value.

Tree Schedule

2.8 Appendix A presents details of the individual trees, groups, and hedgerows including heights, diameters at breast height, crown spread (given as a radial measurement from the stem), age

class, comments as to the overall condition at the time of inspection, BS5837 category of quality and suitability for retention and the root protection area.

2.9 General observations particularly of structural and physiological condition for example the presence of any decay and physical defect and preliminary management recommendations have also been recorded where appropriate.

2.10 By definition, a hedgerow is desribed as any boundary line of trees or shrubs less than 5m wide at the base, provided that the trees or shrubs are under a regular pruning regime.

2.11 For the tree survey and arboricultural assesment undertaken in accordance with BS 5837:2012, hedgerows and substantial internal or boundary hedges (including evergreen screens) have been recorded including lateral spread, height and stem diameter(s). Where woody plants are present within a hedgerow that are significantly different in character from the remainder of it, these have been identified and recorded separately, especially where they comprise a distinct tree form.

2.12 A tree survey in accordance with British Standard 5837:2012 does not assess hedgerows against the Hedgerow Regulations 1997 or specifically from an ecological perspective, as such would be outside the scope of the British Standard assessment.

Conditions of Tree Survey

2.13 The survey was completed from ground level only and from within the boundary of the site. Aerial inspection of trees was not undertaken at this stage. Investigations as to the internal condition of a tree have also not been undertaken being beyond the scope of this assessment. Evaluation of tree condition given within this assessment applies to the date of survey and cannot be assumed to remain unchanged. It may be necessary to review these within 12 months, in accordance with sound arboricultural practice.

Site Plans

2.14 The individual positions of trees and groups have been shown on the Tree Survey Plan, Figure 2 (drawing no. 6106-A-02). The positions of trees are based on a topographical / land survey, as far as possible, supplied by the client. The crown spread, root protection area and shade pattern (where appropriate) are indicated on this plan.

2.15 As part of the Arboricultural Impact Assessment, a Tree Retention Plan, Figure 3 (drawing no. 6106-A-03) has been prepared to show the proposed layout in relation to the existing tree cover allowing an assessment of any potential conflicts. The plan also identifies which trees are to be removed or retained as part of the proposed development and also trees considered unsuitable for retention through the assessment process (Category U).

Tree Constraints and Root Protection Area (RPA)

2.16 Below ground constraints to future development are represented by the area surrounding the tree that contains sufficient rooting volume for the specimen to have the best chance of survival in the long term. This is known as the root protection area (RPA). The RPA has been calculated in accordance with section 4.6 of BS5837 and requires suitable protection in order for the tree to be incorporated into any future scheme. Where applicable the shape of the RPA has been altered to take into account the presence of surrounding obstacles which may have restricted root growth.

2.17 Where groups of trees have been assessed, the RPA has been shown based on the maximum sized tree in any one group and so may exceed the RPA required for some of the individual specimens within the group.

3.0 RESULTS

3.1 A total of seventeen individual trees, ten groups of trees, and four hedgerows were surveyed as part of the arboricultural assessment. Trees were surveyed as individual trees and groups / blocks of trees where examples are clearly present as such per the description. Refer to Figure 2 – Tree Survey Plan (drawing no. 6106-A-02) and Appendix A – Tree Schedule for full details of the trees included in this assessment. The table below summarises the trees assessed.

Results Summary

3.2 The trees within the site were sparse overall and confined to the field boundaries, including the hedgerows, ditches and steep embankments. The age range varied amongst the recorded tree stock from young to mature, and consisted of English elm *Ulmus procera*, English oak *Quercus robur*, holly *Ilex aquifolium,* silver birch *Betula pendula,* elder *Sambucus nigra,* and sycamore *Acer pseudoplatanus.* The most dominant species recorded within the site overall was English oak and this was mostly of early mature to mature age.

3.3 Most of the surveyed tree stock was located offsite within the adjacent residential gardens beyond the north western and eastern boundary, and the railway embankment beyond the southern boundary. The trees offsite were incorporated into the assessment due to their close proximity to the site, which could potentially pose a constraint to the future use of the land. The offsite trees comprised of a higher diversity of species with common ash *Fraxinus excelsior* and English oak the most dominant.

3.4 Several of the trees indicated on the following table have been discussed in more detail, owing to their physical condition or arboricultural significance.

Table 1: Summary of trees by category

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable	T3, T8, T9	3		0
Category A (High Quality / Value)	T15	1	TG10	1
Category B (Moderate Quality / Value	T1, T2, T6, T7, T10, T11, T16, T17	8	TG1, TG4, TG8, TG9	4
Category C (Low Quality / Value)	T4, T5, T12, T13, T14	5	TG2, TG3, TG5, TG6, TG7, H1, H2, H3, H4	9

3.5 Trees T1 to T3 were positioned in a line adjacent to the south-eastern boundary by Sandy Lane. T1 and T2 were early mature to mature English oak trees and T3 was thought to be the same however; T3 was covered in dense ivy that obstructed any visually assessment. It was not possible to either identify the species of T3 or thoroughly assess its structural condition. It was considered to be either dead or of poor health as the tree did not display any growth beyond the

ivy, which meant that it would have very limited photosynthetic capability. T1 and T2 displayed much better health with no major defects discovered. Therefore T1 and T2 were noted to be of moderate arboricultural quality and retention category B, whereas T3 was considered to be unsuitable for retention, (category U).

3.6 T4 was a mature English oak located in a solitary position adjacent to a ditch that separated the easternmost field of the site. It was in the form of a lapsed pollard with the stem union forming multiple leader stems at approximately four metres above ground. Major decay was observed within the central area of the union with many cracks and openings evident between the individual stems. The cracks between the stems appeared to have formed over many years as the decay was advanced and had exposed the heartwood of one of the stems. Therefore it was considered to be a structural concern as the likelihood for stem failure, at point of the union, is likely to increase as the tree continues to increase in size and weight.

3.7 Three other individual trees were also located in solitary positions within the site including T10 to T12. T10 was an over mature English oak with a very sparse upper canopy, indicating that the tree was in decline. Despite this, the tree appeared to be in a reasonable condition overall and was thus considered to be of moderate arboricultural quality (retention category B). T11 and T12 were both holly of good health with no major defects observed. T11 was of mature proportions and subsequently of higher value than the significantly smaller T12. T11 was regarded as retention category B and T12 as retention category C.

3.8 Positioned on the railway embankment, just beyond the southern boundary of the site, was a row of young to mature broadleaved specimens that collectively contributed moderate landscape feature. TG1 consisted of common ash, elder, English oak, field maple *Acer campestre*, aspen *Populus tremula,* and hazel *Corylus avellana* and was sparse in some places although generally forming a screen between the fields and the railway line. One common ash tree had failed at the lower section of its stem and fallen into the site. However, the general health of the trees was fair with no other major defects observed.

3.9 The remaining trees positioned on the railway embankment included T5 common ash, T6 common ash, and T7 English oak, which were all of a mature age class. T5 was considered to be low quality due to heavy pruning which had been undertaken on all the major branches greatly reducing its overall size. The tree displayed very little in terms of reaction growth and was therefore considered limited in its future life expectancy and arboricultural value. T6 was a lapsed coppice with three co-dominant stems forming at ground level. The tree displayed better vitality and structure and was thus regarded as being of moderate arboricultural quality (retention category B). T7 was mostly covered by dense ivy growth but with many live branches clearly visible. T7 displayed an uneven canopy due to the removal of a large proportion of the southern section however, overall the structural condition of the tree was fair and therefore T7 was regarded also to be of moderate arboricultural quality.

3.10 The tree groups within the site covered only small areas of land and comprised trees of small proportions. This included TG2, a row of semi-mature broadleaves, TG3 an outgrown hedgerow, TG5 semi-mature, self-set English elm, and TG6 two semi-mature English oaks that had outgrown the hedgerow H3. All four groups were considered to be of low arboricultural and landscape value due to their small proportions that contributed little to the site, and therefore were graded as retention category C.

3.11 TG7 formed a significantly larger tree group positioned offsite and adjacent to the north-western boundary, near (B1348) Ipswich Road. The group was comprised of a semi-mature blackthorn *Prunus spinosa*, English oak, and English elm. Many of the elm specimens within the group were showing the symptoms of Dutch elm disease *Ophiostoma novo-ulmi,* which included major dieback of the crowns and bark delamination. This disease is very common on elm and ultimately results in fatality. The blackthorn and oak specimens displayed much better health and are likely to grow and develop further over future years.

3.12 The highest proportion of tree coverage assessed was situated within the residential gardens that abutted the north-eastern boundary. This included trees T15 – T17, and groups TG8 – TG10, which collectively covered the majority of gardens adjacent to the site.

3.13 TG10 was the most notable of the surveyed tree stock as it contributed, from an arboricultural perspective, high landscape value due to its mature proportions, including heights of approximately eighteen metres. The group consisted of mature English oak and aspen that were of fair to good structural condition. The specimens had plenty of space to grow and, as a result, had developed well balanced canopies, measuring at up to 18 metres in diameter. The large mature proportions and positions on the bank had resulted in the tree group being a focal point of the site and considered as retention category A.

4.0 ARBORICULTURAL IMPACT ASSESSMENT (AIA)

4.1 The following paragraphs present a summary of the tree survey and offers discussion of particular trees and groups recorded in the context of any proposed development in the form of an Arboricultural Impact Assessment in accordance with section 5.4 of BS5837. Any final tree retentions will need to be reconciled with the advice contained within this report.

4.2 The AIA has been based upon the Development Framework Plan and seeks to outline the potential impact that the proposals would have on the existing trees. The above drawing outlines the proposed residential development of the site located in three distinct portions and divided by open space. An overlay of the above layout has been incorporated in the Tree Retention Plan (Figure 3) to assist in identifying potential conflicts with the existing trees.

4.3 The proposals are currently in outline only and therefore further assessment at the reserved matters stage will be required to assess any potential impacts and mitigation planting to compensate for the proposed loss of trees and hedgerows.

4.4 The proposals allow the retention and integration of the vast majority of existing trees due to their positions around the boundaries of the site. This retained tree cover will be enhanced and managed to offer filtered screening where required and amenity woodland throughout the areas of Public Open Space. Additional planting is to be provided to the north of the railway line to produce a landscape buffer of woodland planting containing native tree species. Tree cover positioned on the railway embankment had recently been heavily pruned away from the railway line which had resulted in trees of poor form and condition. The woodland group aims to improve the existing vegetation belt which will extend eastwards to link the hedgerow forming the eastern boundary adjacent to Sandy Lane to those existing trees located on the railway embankment.

New trees will be planted around the attenuation pond to provide biodiversity benefits for local wildlife and softening to the newly constructed form.

4.5 Further planting throughout the central portion of public open space will connect the remaining existing tree cover positioned on the boundaries and new tree planting in pockets as amenity. The new planting will provide intermittent tree cover between each area of development fringing the urban edge and offering high quality arboricultural features where currently none exist.

4.6 Trees positioned centrally were generally of moderate to low quality with many trees having self-seeded from the surrounding vegetation. One hedgerow (H3), separating the two field compartments, towards the north of the site will be removed to provide sufficient space for development.

4.7 T10 is shown to be removed as part of the development of the site however, retention of this specimen should possibly be considered further due to its landscape value positioned on the edge of the area of high ground towards the west of the site. T10 was visible from across the site and from several adjacent publicly accessible areas and its retention and incorporation would be beneficial.

4.8 Suitable offsets will be offered where trees are positioned on the edge of the site between the existing conurbation fringes forming the eastern boundary. Additional tree planting to enhance and improve the existing tree stock forming the eastern boundary will provide a strengthened vegetation buffer.

4.9 Two access positions are identified to the north and west of the site. No existing tree or hedgerow cover was present on the western boundary where the access is to be located and therefore no tree or hedgerow removal will be required. A new access point through the northern boundary will connect the site with Ipswich Road (B1438). Removal of approximately 24m of TG7 will be required to provide sufficient space for the alterations to the existing carriageway and new roads into the site and also visibility splays to allow safe passage of vehicles onto Ipswich Road. Further assessment at the detailed application stage will be required to review the potential impact to the existing vegetation and ensure sufficient mitigation is provided throughout the site.

4.10 Hedgerow H1 formed the eastern boundary of the site and H2 partially formed the northern boundary. A new electric cable serving the offshore wind farm is to pass across the site requiring a 30m easement where no tree or hedgerow cover is to be retained or planted. Further assessment of the tree and hedgerow cover adjacent to the easement corridor will be required where Root Protection Areas are shown to extend into the area to minimise the effect.

Statutory Constraints

4.11 The following table details which trees are covered by the Dukes Hill, Martlesham Tree Preservation Order, 78.1967. The trees covered within the TPO are protected by law from felling or uprooting, pruning including ‘topping/lopping’ and willful damage or destruction. Were planning permission to be granted for development this would override the protection afforded by the tree preservation order to those trees required for removal to facilitate the proposals.

Table 2: Tree Preservation Order

Tree No, taken from FPCR	TPO reference no.
T14, T15, T16, T17, TG9, TG10, H4	Dukes Hill, Martlesham TPO no. 78.1967 A1

Mitigation for Tree Losses

4.12 The landscaping scheme should consider the use of both native tree species (for their low maintenance requirements and nature conservation value) and ornamental species (for their contribution to urban design and amenity value). Species choices should be selected on the basis of their suitability for the final site use. Careful consideration would need to be given to the following: ultimate height and canopy spread, form, habit, density of crown, potential shading effect, colour, water demand and maintenance requirements in relation to both the built form of the new development and existing properties. Consideration on the effects of water demand of different tree species and soil type should also be applied where appropriate.

4.13 The landscaping scheme should consider providing tree planting in the following situations; new amenity planting as part of any proposed road infrastructure; private gardens; areas of incidental open space; new public parks and larger areas of open space; and structural buffer planting where appropriate.

4.14 Tree planting should be avoided where they may obstruct overhead power lines or cables. Any underground apparatus should be ducted or otherwise protected at the time of construction to enable trees to be planted without resulting in future conflicts. Wherever possible, following discussions with the developer and utility company concerned, particularly on new development sites, common service trenches should be specified to minimise land take associated with underground service provision and to facilitate access for future maintenance.

Tree Management

4.15 Should the layout in its current form be approved, a review of the relationship between the layout and the retained trees should be undertaken by a qualified arboriculturalist to prepare an approved schedule of tree works listing all the trees requiring work (making use of reference numbers), accompanied by a plan showing the location of each tree.

4.16 All retained trees should be subjected to sound arboricultural management as recommended within section 8.8.3 of BS5837 *Post Development Management of Existing Trees,* where there is a potential for public access in order to satisfy the landowner's duty of care. Additionally inspections annually and following major storms should be carried out by an experienced arboriculturist or arborist to identify any potential public health and safety risks and to agree remedial works as required.

4.17 All tree works undertaken should comply with British Standard 3998:2010 and should therefore be carried out by skilled tree surgeons. It would be recommended that quotations for such work be obtained from Arboricultural Association Approved Contractors as this is the recognised authority for certification of tree work contractors.

4.18 All vegetation and, particularly, woody vegetation proposed for clearance should be removed outside of the bird-breeding season (March - September inclusive) as all birds are protected

under the Wildlife and Countryside Act, 1981 (as amended) whilst on the nest. Where this is not possible, vegetation should be checked for the presence of nesting birds prior to removal by an experienced ecologist.

General Design Principles in Relation to Retained Trees

4.19 At the detailed design stages closer assessment of the distance of proposed development in relation to the calculated root protection area of retained trees should be made and modifications to the layout made where necessary. Should there be areas where it is not possible to modify the layout the use of no-dig construction methods will need to be considered prior to decisions being made as to the removal of each tree concerned. Such construction methods can be used particularly in the case of footways, driveways and other light use access roads.

4.20 When considering layouts an important element of detailed design is the consideration of the eventual positioning of any utility services. As recommended by the guidance given in section 7.7 of BS5837 services, where possible, should not encroach within the root protection areas of retained trees. If below-ground services are proposed within a root protection area modifications to the alignment of the service route may need to be made in order to minimise adverse effects on root stability and overall tree-health.

4.21 Consideration may also need to be given to the potential for tree roots of newly planted trees and hedgerows to affect or compromise the future services. As far as feasible, it would be preferable that proposed services near both the existing and any new planting should be ducted for ease of access and maintenance and grouped together to minimise any future disturbance.

5.0 TREE PROTECTION MEASURES

5.1 Retained trees will be adequately protected during works ensuring that the calculated RPA for all retained trees can be appropriately protected through the erection of the requisite tree protection barriers. Measures to protect trees should follow the guidance in BS5837 and will be applied where necessary for the purpose of protecting trees within the site whilst allowing sufficient access for the implementation of the proposed layout. These have been broadly summarised below.

General Information and Recommendations

5.2 All trees retained on site will be protected by barriers or ground protection around the calculated RPA or other defined constraints of this assessment as detailed by section 6 and 7 of BS5837.

5.3 Barriers will be erected prior to commencement of any construction work and before demolition including erection of any temporary structures. Once installed, the area protected by fencing or other barriers will be regarded as a construction exclusion zone. Fencing and barriers will not be removed or altered without prior consultation with the project arboriculturalist.

5.4 Any trees that are not to be retained as part of the proposals should be felled prior to the erection of protective barriers. Particular attention needs to be given by site contractors to minimise damage or disturbance to retained specimens.

5.5 Where it has been agreed, construction access may take place within the RPA if suitable ground protection measures are in place. This may comprise single scaffold boards over a compressible layer laid onto geo-textile materials for pedestrian movements. Vehicular movements over the RPA will require the calculation of expected loading and the use of proprietary protection systems.

5.6 Confirmation that tree protective fencing or other barriers have been set out correctly should be gained prior to the commencement of site activity.

Tree Protection Barriers

5.7 Tree protection fencing should be fit for the purpose of excluding any type of construction activity and suitable for the degree and proximity of works to retained trees. Barriers must be maintained to ensure that they remain rigid and complete for the duration of construction activities on site.

5.8 In most situations fencing should comprise a scaffold framework comprising a vertical and horizontal framework, well braced to resist impacts. For particular areas where construction activity is anticipated to be of a more intense nature higher fencing may be necessary. Where site circumstances and the risk to retained trees do not necessitate the default level of protection an alternative will be specified. The standard fencing specifications as recommended in BS5837 has been illustrated in Appendix B.

5.9 It may be appropriate on some sites to use temporary site offices as components of the protection barriers.

Ground Protection

5.10 Where it has been agreed, construction access may take place within the RPA if suitable ground protection measures are in place. Guidance on examples of appropriate ground protection for several different scenarios is provided in section 6.2.3 of BS5837. The location of and design for temporary ground protection should be detailed as part of an Arboricultural Method Statement required by conditioning should planning permission be granted. In all cases, the objective is to avoid compaction of the soil which can arise from a single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

Protection outside the exclusion zone

5.11 Once the areas around trees have been protected by the barriers, any works on the remaining site area may be commenced providing activities do not impinge on protected areas.

5.12 All weather notices should be attached to the protective fencing to indicate that construction activities are not permitted within the fenced area. The area within the protective barriers will then remain a construction exclusion zone throughout the duration of the construction phase of the proposed development.

5.13 Wide or tall loads etc should not come into contact with retained trees. Banksman should supervise transit of vehicles where they are in close proximity to retained trees.

5.14 Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree bole. No concrete mixing should be done within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.

5.15 No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.

5.16 Notice boards, telephone cables or other services should not be attached to any part of a retained tree.

5.17 Any trees which need to be felled adjacent to or are present within a continuous canopy of retained trees, must be removed with due care (it may be necessary to remove such trees in sections).

Protection of Trees Close to the Site

5.18 There were a number of trees located on the boundaries of the site. The root protection area of these trees will need to be protected in the same way as all the retained trees within the site. All trees located outside the boundaries of the assessment site yet within close proximity to works should be adequately protected during the course of the development by barriers or ground protection around the calculated RPA.

5.19 Any trees which are to be retained and whose RPAs may be affected by the development should be monitored to identify any alterations in quality with time and to assess and undertake any remedial works required as a result.

Protection for Aerial Parts of Retained Trees

5.20 Where it is deemed necessary to operate a wide or tall load, plant bearing booms, jibs and counterweights or other such equipment as part of the construction works it is best advised that appropriate, but limited tree surgery, be carried out beforehand to remove any obvious problem branches. Any such equipment would have potential to cause damage to parts of the crown material, i.e. low branches and limbs, of retained trees within the protective barriers. This is termed as 'access facilitation pruning' within BS5837. Any such pruning should be undertaken in accordance with a specification prepared by an arboriculturalist.

5.21 It is strongly advised that a pre-commencement site meeting is held with contractors who are responsible for operating machinery, as described above, to firstly highlight the potential for damage occurring to tree crowns and to ensure that extra care is applied when manoeuvring machinery during such operations within close proximity to retained trees to avoid any contact.

5.22 In the event of having caused any such branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with British Standard 3998:2010 to correct the damage, upon completion of development.

6.0 CONCLUSION

6.1 The site is located to the south west of Woodbridge, and immediately to the west of Sandy Lane. The residential area of Woodbridge adjoins the north-western boundary, and a railway line forms the southern boundary. The western and northern boundaries of the site are formed by the existing road network comprising Top Street and (B1348) Ipswich Road.

6.2 The site consists of six field parcels separated by hedgerows, ditches, and steep banks. The largest fields formed the northern, eastern and southern sections of the site and had been used for arable cultivation; however, they were not in use for agricultural purposes at the time of the assessment having been left fallow. Contained within the smaller fields, located to the west of the site, was an open storage facility for disused cars and container units.

6.3 The site contained only a few trees which were situated within the field boundaries with English oak *Quercus robur*, and English holly *Ilex aquifolium* being the most dominant. Most of the surveyed tree stock was located offsite within the adjacent residential gardens and railway embankment.

6.4 Following consultation with the Local Planning Authority, Suffolk Coastal District Council, it is understood that there is a tree preservation order, namely No: 78 Dukes Hill, Martlesham (1967), which applies to a number of trees present on the edge of the assessment site and therefore statutory constraints apply to the eastern boundary of the proposed development in respect of trees. A plan detailing trees covered by the TPO has been included within the report as Appendix C and further details are given in Section 4.

6.5 The proposals for the site are currently in outline and therefore only limited assessment can be made at this stage. Further consideration of the impacts upon trees will be required where the edge of proposed development extends up to the existing tree cover. Particular attention will need to be considered towards the east of the site where the development parcels are shown to extend up to the boundary of the site and to the base of the trees included in the adjacent area Tree Preservation Order. Further assessment of the existing layout has however provided an initial assessment of the potential impacts.

6.6 The majority of the existing tree and hedgerow cover will be retained and incorporated into the new development and new tree planting will be included to soften the built environment and link the existing vegetation surrounding the site. Despite the loss of some moderate and low quality trees, on balance, tree cover will increase across the site offering improved arboricultural and wildlife benefits for the new occupants of the development and wider residential area.

KEY

Assessment Boundary

rev	date	description	by

masterplanning
environmental assessment
landscape design
urban design
ecology
architecture
arboriculture

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client
Gladman Developments Ltd

project
Land off Duke's Park
Woodbridge

drawing title
SITE LOCATION PLAN
FIGURE 1

scale	drawn	date
1:25000 @ A4	HR	April 2014

drawing number
6106-A-01

rev
A

CAD file: J:\6100\6106\ARB\Plans\Fig 1 Site Location Plan.dwg

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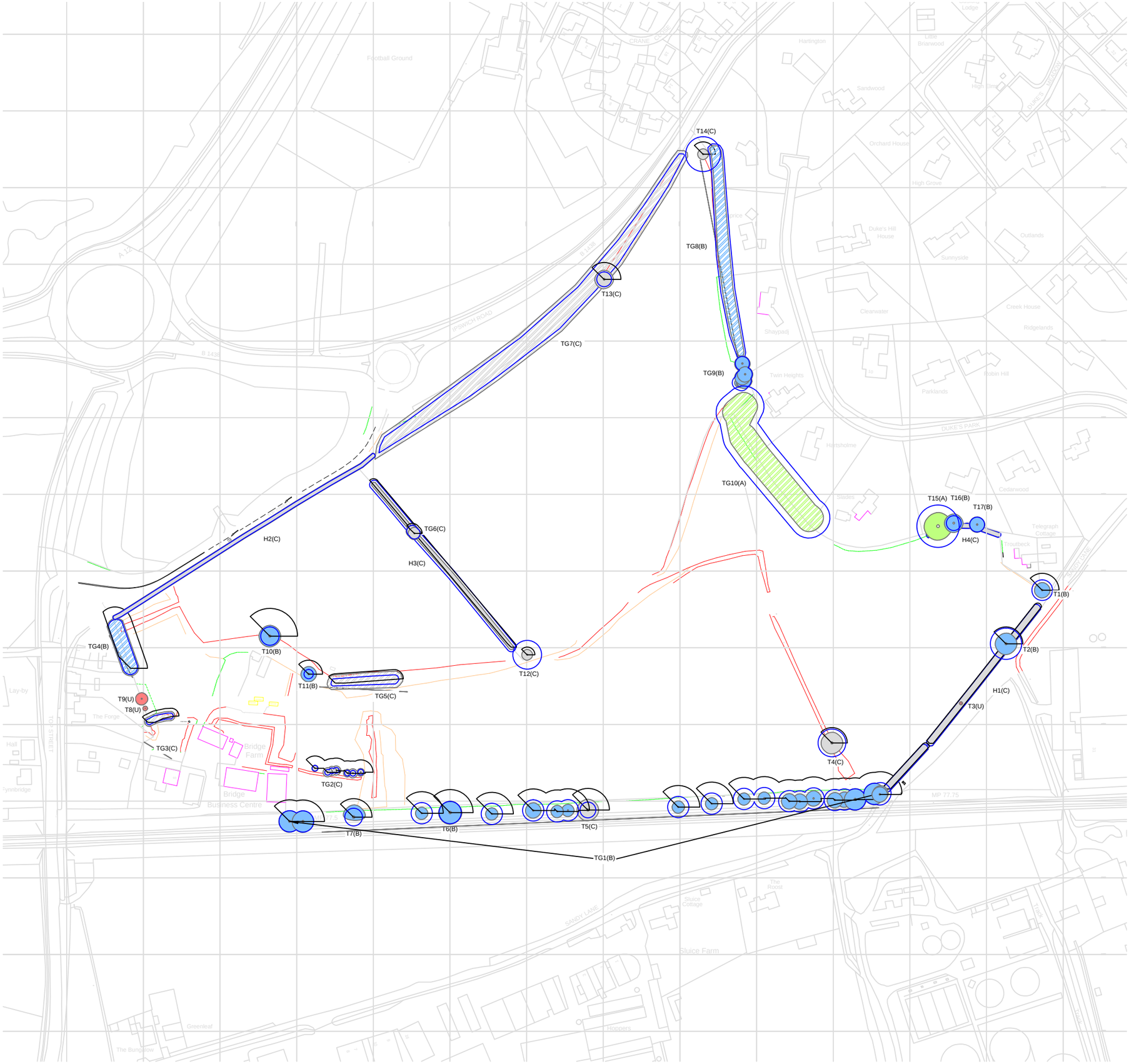

KEY

- Category U - Unsuitable for Retention (BS 5837:2012)
- Category A - Trees of High Quality (BS 5837:2012)
- Category B - Trees of Moderate Quality (BS 5837:2012)
- Category C - Trees of Low Quality (BS 5837:2012)
- Group hatching (Colour indicates BS Category)
- Hedgerow hatching (Colour indicates BS Category)
- Root Protection Area (the RPA has been altered where appropriate to reflect underground constraints)
- T1 (A) TG1 (A) — Individual / Group Number and BS Category
- Indicative Shade Pattern (where appropriate)

N

Scale 1:2500 @ A3

0 50 100 150m

NOTES

All dimensions to be verified on site. Do not scale this drawing. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule .

Drawing produced in colour, a monochrome copy should not be relied upon, and is based on digital information supplied by the client in dwg format. The exact position of trees are to be checked and verified on site prior to any tree work or construction work being undertaken.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by a qualified arboriculturalist or tree surgeon should works commence 12 months after the time of this survey. Please note that no works should be undertaken to any trees illustrated herein without first obtaining the proper authorisation to do so.

rev	date	description	by
-	02.04.2014	First Issue	SLK

masterplanning
environmental assessment
landscape design
urban design
ecology
architecture
arboriculture

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client
Gladman Developments Ltd

project
Land off Duke's Park
Woodbridge

drawing title
TREE SURVEY PLAN
FIGURE 2

scale	drawn	date
1:2500 @ A3	SLK	April 2014

drawing number
6106-A-02

rev
-

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N

KEY

- Tree/Group to be Retained
- Tree/Group to be removed to facilitate the proposals
- Category U - Unsuitable for retention on arboricultural grounds
- Root Protection Area (Shown for retained trees only)
- T1 (A) TG1 (A) — Individual / Group Number and BS Category
- Indicative Shade Pattern (where appropriate)

Scale 1:2500 @ A3

0 50 100 150m

NOTES

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rev	date	description	by
-	21.07.2014	First Issue	DS
-	06.08.2014	Rev A	RSH
-	02.11.2015	Final Issue	DS
-	16.11.2015	Revision B	DS

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environmental assessment
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project
Land off Duke's Park
Woodbridge

drawing title
TREE RETENTION PLAN
FIGURE 3

scale	drawn	date
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Appendix A - Tree Schedule

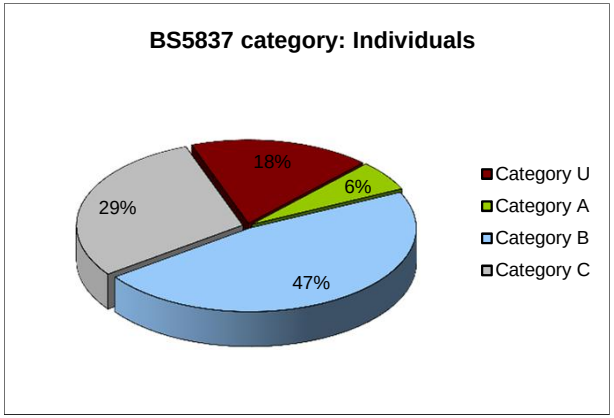
<table>
<tr><th>Measurements</th><th>Age Class</th><th>Overall Condition</th><th>Root Protection Area (RPA)</th></tr>
<tr><td>Height - estimated from ground level (m).</td><td>YNG: Young trees up to ten years of age.</td><td>G - Good: Trees with only a few minor defects and in good overall health needing little, if any attention.</td><td rowspan="4">• The RPA column gives the required area (m²).
• The RPA Radius column gives the radius (m) of an equivalent circle.
• The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the required rooting area in order for a tree to be retained.</td></tr>
<tr><td>Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837.</td><td>SM: Semi-mature, trees less than 1/3 life expectancy.</td><td>F - Fair: Trees with minor, but rectifiable, defects or in the early stages of stress from which it may recover.</td></tr>
<tr><td>Crown - crown spread estimated radially from the main stem (m).</td><td>EM: Early mature, trees 1/3 – 2/3 life expectancy.</td><td>P - Poor: Trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term.</td></tr>
<tr><td rowspan="2">Abbreviations
est - Estimated stem diameter
avg - Average stem diameter for multiple stems
upto - Group has a maximum stem diameter of</td><td>M: Mature trees, over 2/3 life expectancy.</td><td>D - Dead: Trees no longer alive. This could also apply to trees that are dying and unlikely to recover.</td></tr>
<tr><td>OM: Over mature, declining or moribund trees of low vigour.</td><td colspan="2" rowspan="2">In the assessment, of the BS category, particular consideration has been given to the following
• The health, vigour and condition of each tree
• The presence of any structural defects in each tree and its future life expectancy
• The size and form of each tree and its suitability within the context of a proposed development
• The location of each tree relative to existing site features e.g. its screening value or landscape features
• Age class
• Life expectancy</td></tr>
<tr><td></td><td>V: Veteran, tree possessing certain attributes relating to veteran trees.</td></tr>
</table>

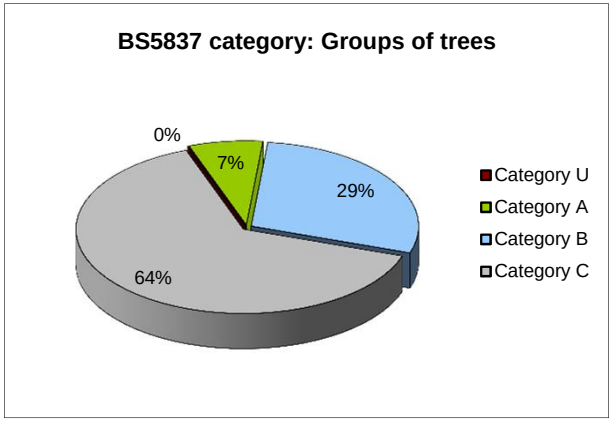
Structural Condition
The following has been considered when inspecting structural condition: • The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay. • Soil cracks and any heaving of the soil around the base. • Any abrupt bends in branches and limbs resulting from past pruning. • Tight or weak 'V' shaped forks and co-dominant stems. • Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994). • Cavities as a result of limb losses or past pruning. • Broken branches or storm damage. • Canker formations. • Loose or flaking bark. • Damage to roots. • Basal, stem or branch / limb cavities. • Crown die-back or abnormal foliage size and colour. • Any changes to the timing of normal leaf flush and leaf fall patterns.

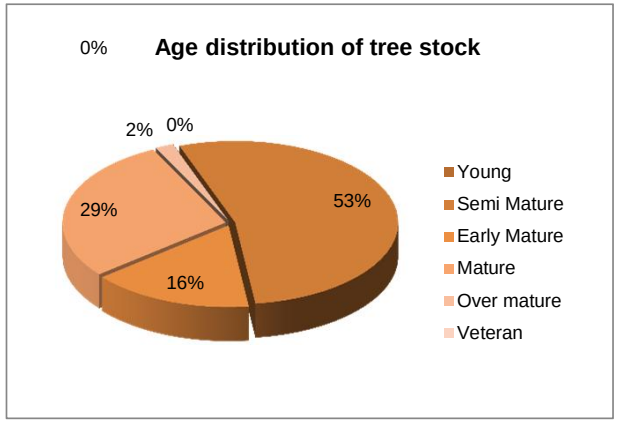
Quality Assessment of Retention Category
Category U - Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.
Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
Category C - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.
Sub-categories: (i) - Mainly arboricultural value (ii) - Mainly landscape value (iii) - Mainly cultural or conservation value

Appendix A - Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U	T3, T8, T9	3		0
Category A	T15	1	TG10	1
Category B	T1, T2, T6, T7, T10, T11, T16, T17	8	TG1, TG4, TG8, TG9	4
Category C	T4, T5, T12, T13, T14	5	TG2, TG3, TG5, TG6, TG7, H1, H2, H3, H4	9
	Total	17	Total	14







Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	English Oak Quercus robur	11	560	5	EM	G	Few areas of minor deadwood within the canopy Bark wounds, possibly from vehicular damage, evident on the eastern side of the stem No major defects	142	6.7	B (i)
T2	English Oak Quercus robur	11	850	7	M	F	Dense ivy covered the majority of the stem and branches of this tree, restricting the visual assessment of the tree The parts of the tree visible for assessment were two to three metres of the branch extremities Few area off dead branches but only minor in proportions	327	10.2	B (i)
T3	Unidentified species	8	1260	1	M	P	Dense ivy covered the tree obstructing all the branches and stem from visual assessment, and identification No evidence of life growth observed	N/A	N/A	U
T4	English Oak Quercus robur	10	750	7	M	P	Numerous branches within the lowest two metres of the Crown, on the southern side, had suffered from flail damage A former pollard with multiple leader stems forming at approximately four metres above ground Major decay observed within the central area of the stem union, where the extent of the decay was significant with cracking between the individual stems The decay noted in the tree has the potential to result in major stem failure Situated south of adjacent ditch	254	9.0	C (i)
T5	Ash Fraxinus excelsior	14	300 310	7	M	P	Tree been unsympathetically pruned, (lopped and topped), with all the major branches reduced significantly is size The tree displayed very little evidence of life growth, and all was confined to a few live twigs situated sporadically across the tree Major pruning wound Soil excavation within a metre of the tree on the northern side Situated offsite, on a railway embankment	84	5.2	C (i)
T6	Ash Fraxinus excelsior	15	est 350 350 350	7.5	M	F	The tree was a former coppice with three co-dominant stems forming at ground level Situated offsite, by approximately three metres, on a railway embankment	166	7.3	B (i)
T7	English Oak Quercus robur	12	480	N - 8 S - 7 E - 7.5 W - 2	M	F	Major ivy covered most of the tree restricting an accurate measurement of the stem diameter and assessment of the tree Major pruning wound evident on west side over track Situated offsite, on a railway embankment	104	5.8	B (i)

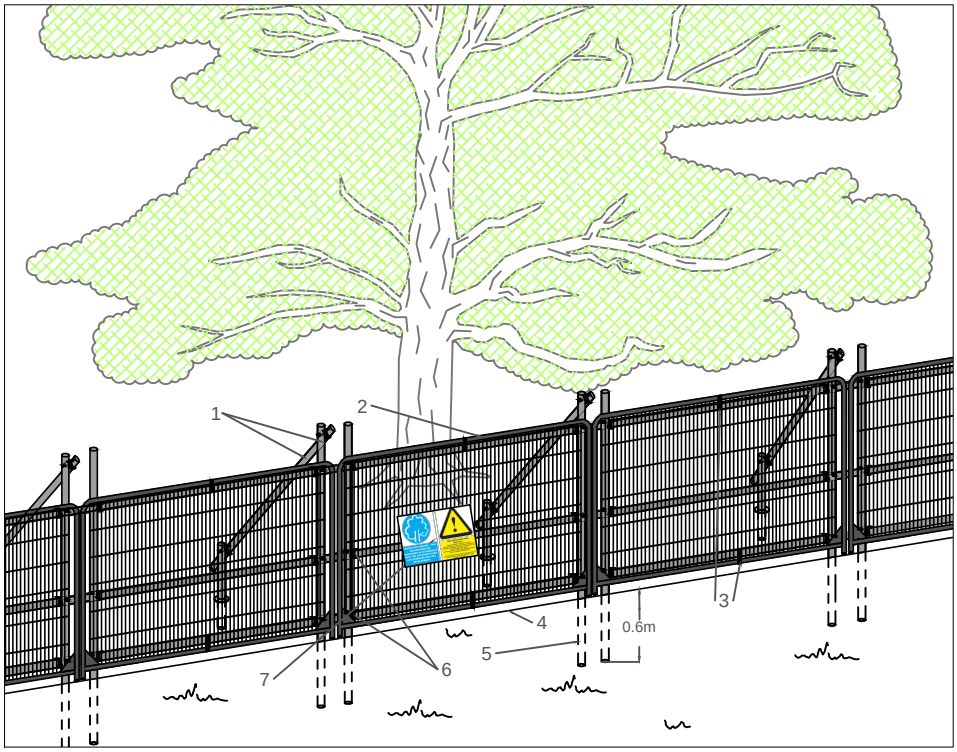
Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T8	English Oak Quercus robur	4.5	450	1.5	EM	P	Tree been unsympathetically pruned, (lopped and topped), with all the major branches reduced significantly is size The tree displayed very little evidence of life growth, and all was confined to a few live twigs situated sporadically across the tree Major pruning wound Soil excavation within a metre of the tree on the eastern side	N/A	N/A	U
T9	English Oak Quercus robur	8	800	4	M	P	Tree been unsympathetically pruned, (lopped and topped), with all the major branches reduced significantly is size Soil excavation within one metre of the stem The tree displayed very little evidence of life growth, and all was confined to a few live twigs situated sporadically across the tree major pruning wounds at the extremity of every branch	N/A	N/A	U
T10	English Oak Quercus robur	18	840	7	OM	F	Sparse upper canopy indicating decline of physiological health Flail damage on the northern side Minor and major deadwood	319	10.1	B (i)
T11	Holly Ilex aquifolium	9	350 360	5	M	G	Typical crown form with no major defects observed	114	6.0	B (i)
T12	Holly Ilex aquifolium	5	170 190	3.5	SM	G	Typical crown form with no major defects observed	29	3.1	C (i)
T13	English Oak Quercus robur	11	780	6	M	P	Deadwood evident within the crown of minor and major proportions Dense ivy growth covering the tree up to ten metres above ground, which restricted the assessment	275	9.4	C (i)
T14	Sycamore Acer pseudoplatanus	8	290 220 170	3.5	EM	P	Multiple stems formed from ground level with light ivy cover on dominant stem up to approximately five metres no major defects were observed	73	4.8	C (i)
T15	English Oak Quercus robur	13	est 950	9	M	G	Situated offsite and within a residential garden Pruning wounds observed throughout the crown but all appeared dry with some callus growth, indicating that they had been created many years previous to the assessment No major defects	408	11.4	A (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T16	English Oak Quercus robur	8	est 1150	6	SM	F	Situated offsite and within a residential garden A high proportion of pruning wounds evident, especially within the area of the stem union The stem union displayed reaction growth that appeared as 'swelling' on the tree Branch stubs evident	598	13.8	B (i)
T17	English Oak Quercus robur	8	est 400	5	SM	F	Situated offsite and within a residential garden Branch stubs and pruning wounds observed No major defects	72	4.8	B (i)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
TG1	Ash Fraxinus excelsior, Elder Sambucus nigra, English Oak Quercus robur, Field Maple Acer campestre, Aspen Populus tremula, Hazel Corylus avellana	14	upto 200 330 380 200	4 - 7	Yng, SM, EM	F	Major stem of one specimen had failed and fallen into site Situated offsite by approximately five to seven metres, within a railway embankment	151	6.9	B (ii)
TG2	Elder Sambucus nigra, Silver Birch Betula pendula, Holly Ilex aquifolium	8	150	2 - 3	SM	G	Typical canopy forms with no major defects observed	10	1.8	C (ii)
TG3	Hazel Corylus avellana	5	upto 90 90 90	3	SM	P, F	Many specimens had been felled resulting in numerous gaps and multiple stubs	11	1.9	C (ii)
TG4	Blackthorn Prunus spinosa, English Oak Quercus robur, Hawthorn Crataegus monogyna, Plum Prunus domestica, bullace prunus insititia 'damson'	11	upto 350	5.5	SM, EM	F, G	Bark wounds and minor dead branches evident on some of the specimens Compacted ground at the base Crossing and rubbing branches observed within most of the specimens Dense undergrowth at the base Multiple leader stems forming from base Single stem forms within group Situated offsite within residential gardens	55	4.2	B (ii)
TG5	English Elm Ulmus procera	6	90	3.5	SM	G	Typical crown form with no major defects noted	4	1.1	C (ii)

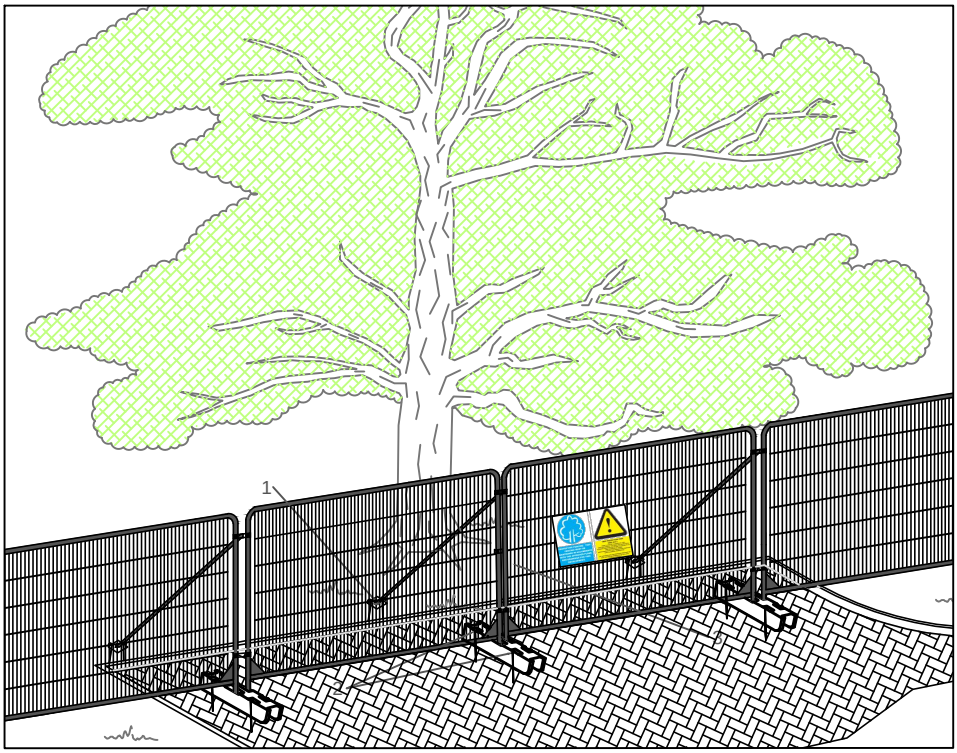
Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
TG6	English Oak Quercus robur	5	300	4	SM	F	Originally managed as part of the adjacent hedgerow Now forming two outgrown species	41	3.6	C (ii)
TG7	Blackthorn Prunus spinosa, English Oak Quercus robur, English Elm Ulmus procera	7	upto 120	3.5	SM	F, G	Minor deadwood observed on a minority of elm specimens throughout the group Dense ivy growth covering a high proportion of many specimens Few dead elm specimens	7	1.4	C (ii)
TG8	Leyland Cypress Cupressocyparis leylandii, Western Red Cedar Thuja plicata, Douglas fir Pseudotsuga menziesii Sycamore Acer pseudoplatanus, Cider Gum Eucalyptus gunnii	8	upto 260	2	SM, EM	F, G	Many of the specimens displayed typical crown forms however, some were managed as part of hedgerows No major defects were observed	31	3.1	B (ii)
TG9	English Oak Quercus robur, Tree of Heaven Ailanthus altissima	14	upto 380	5	EM	G	Typical crown forms with no major defects observed	65	4.6	B (ii)
TG10	English Oak Quercus robur, Aspen Populus tremula	18	est 1100	9	M	F, G	Low crown form with a ground clearance Dead branches of both minor and major proportions were evident within the crown Specimens had plenty of space to grow and develop broad canopies Stem cavities discovered Storm damage evident on some specimens	547	13.2	A (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Hazel Corylus avellana	2.5	upto 25x 40	2.5	EM	F	Dormouse traps within the canopies of a minority of the trees Flail damage present on some of the specimens within the lower canopy Ivy on a minor amount of specimens	18	2.4	C (ii)
H2	Blackthorn Prunus spinosa, English Elm Ulmus procera	3	upto 7x 40	1.5	SM	F	The hedgerow covers the northern boundary of both fields but was only trimmed along the boundary of the easternmost field	5	1.3	C (ii)
H3	Hawthorn Crataegus monogyna, English Elm Ulmus procera	3.5	140 140 140	1.5	M	P, F	Flail damage in the lowest metre of stem Dense coverage of ivy	27	2.9	C (ii)
H4	Leyland Cypress Cupressocyparis leylandii, English Elm Ulmus procera	3	upto 140	1.5	SM	G	No major defects Predominantly cypresses with only a few elms	9	1.7	C (ii)



Standard specification for protective barrier

1. Standard scaffold poles
2. Heavy gauge 2m tall galvanized tube and welded mesh infill panels
3. Panels secured to scaffold frame with wire ties
4. Ground level
5. Uprights driven into the ground until secure (min depth of 0.6m)
6. Standard scaffold clamps
7. Construction Exclusion Zone signs



Above ground stabilising systems

1. Stabiliser strut with base plate secured with ground pins
2. Feet blocks secured with ground pins
3. Construction Exclusion Zone signs

Protective Fencing to be positioned to the specified dimensions in accordance with Figure 3 Tree Retention Plan

NOTES

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APPENDIX B
PROTECTIVE FENCING SPECIFICATIONS

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