Part 2: Your Representation (please use a separate form for each representation)

1. Do you consider the Pre-submission Publication to be: (Please tick the appropriate box)

Sound (You support the document)	
Unsound (You think the document needs changing)	X

2. On which part of the document do you wish to make a representation?

Policy	
Paragraph	
Site	**Land to the west of EtlingView (LP[025]007**
Proposals Map	
Settlement Boundary	
Other	

If you consider the document to be SOUND, please go to question 7.

3. If you consider the document to be UNSOUND, to which test of soundness does your representation apply to: (Please mark the appropriate box).

Legal Tests	
Is the plan legally compliant?	
Soundness Tests	
Is the plan positively prepared?	x
Is the plan justified?	x
Is the plan effective?	x
Is the plan consistent with national policy?	x

4. Have you raised this issue before during previous consultations? (Please tick the appropriate box)

Yes at Preferred Site Options and Settlement Boundaries Stage (September to October 2016)	
Yes at Preferred Directions Stage (January - February 2016)	
Yes at Issues and Options Stage (November 2014 - January 2015)	

5. If you have not raised this issue before please use the following box to explain why.

I had understood that Breckland Capita would be taking account of both the unprecedented number of written objections already made (400+) for a current proposal on this site and the numerous technical challenges presented by this site- ~~It is clear that in recommending it they have done neither.~~

6. If you feel the plan is unsound, please use the following box to summarise why you feel the plan is unsound and explain any changes you believe are needed to make the plan sound. (Please attach extra sheets if necessary)

Land to the west of EtlingView (LP[025]007

The proposed site consists of 2 separate hedged fields - one which has been used as an Arable field and a much smaller field which has for 50 years been an enclosed paddock /grazing land. On the edge of a settlement these fields contribute to the rural setting and compliment the adjoining County Wildlife site and surrounding lightly wooded amenity land into which they penetrate.

Many of the 400+ local objectors to the current scheme proposed for the land have outlined the visual, landscape and amenity importance of the land together with numerous issues around flooding, degradation of hedgerows loss of wildlife area and concerns from the Police regarding crime.

The area is a cherished local asset due to its openness -the small field in particular due to its visual exposure from two popular footpaths including the medieval lane – Shillings Lane. The openness of the land is important in separating the built environment from the wildlife corridor and County Wildlife Site, such areas forming a "physical breathing" space away from the hustle and bustle of both the existing and proposed residential areas nearby.

Moreover, the indicative layout illustrates a relatively high density, physically distinct development. wholly incongruous with the single existing dwelling adjoining the paddock field Rose Farm a comparatively low level dwelling with single storey appendages.

The dwellings are likely to result in an unduly urbanised built form, introducing harmful change which would be incompatible with the quality of the landscape and setting of the settlement.

It is clear that most harm will be caused by developing the smaller paddock field In order for the plan to even approach being sound this field should not be developed in any way.

The 2 fields are located in a highly sensitive, historic and valued landscape; bordered by common land and historic rights of way. The level and density of development proposed (60 dwellings) is not reflective of its context and would not enhance the character and appearance of the area, but would have a significant and harmful impact on the setting. A development of 60 dwellings cannot be accommodated successfully on the site without harming the landscape character and appearance of the area- **The application is contrary to the NPPF and Core Strategy Policy CP11/DC16. See also paragraphs 17 & 58 of the NPPF-**

Proposed dwellings on the southern boundary of the site would cause an unacceptable level of overlooking and harm to the amenities of Rose Farm on Field 2 and neighbouring dwellings on Field 1 as well as to users of the surrounding common land and public rights of way. **Contrary to Core Strategy Policy DC01.**

The fields traditionally flood- it can be seen from the development on adjoining fields that the propensity of the area to flood has increased dramatically and that because the adjoining Shillings Lane is lower that flooding of the lane once a rare occurance now occurs frequently- Development as proposed will further increase this flooding.The likely impact on the risk of flooding elsewhere as a result of an increase in the volume of run off post development. **Contrary to NPPF paragraphs 103 and 109**

The NPPF makes it clear in Paragraph 8 that the three roles the planning system is required to perform in respect of sustainable development should not be taken in isolation because they are mutually dependant. For the above reasons the benefits of the housing provision proposed, taking into account the development plan and the policies of the NPPF as a whole, are clearly outweighed by the significant harmful impacts of the development. **This proposal does not meet the criteria to be regarded as sustainable development and should be refused.**

The NPPF identifies (in paras 6 and 17) sustainable development as the purpose of the planning system and conserving and enhancing the natural environment as a 'core planning principle'. While specific policies on conserving and enhancing the natural environment are addressed in Section 11 of the NPPF, these should not be considered in isolation, as other natural environment related policies, and their consideration in plan- and decision-making, can be found throughout the document.

The NPPF states (in para. 114) that local planning authorities should 'plan positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure '.

The NPPF makes it clear (in para. 110) that 'Plans should allocate land with the least environmental or amenity value '. Planning policies and decision-making should seek to protect and enhance natural and heritage assets appropriate to their significance. Policies and decisions should also encourage multiple benefits from development.

7. If you feel that the plan is sound, please tell us why.

8. Can your representation be considered by this written representation or do you consider it necessary to attend the Examination in Public? (Please tick appropriate box)

Yes, my representation can be satisfactorily dealt with by written representations	X
No, my representations can only be suitably dealt with by appearing at the Examination in Public	

9. If you wish to appear at the Examination in Public, please outline why you consider this to be necessary.

10. Do you wish to be: (Please tick appropriate boxes)

Notified of the Submission	
Notified of the Inspectors Recommendations	x
Notified of the Adoption	

Declaration: I understand that the details included on this form will be available in the public domain. (please tick box)	x ✓
Signature:	**Date:** 25/9/17

Breckland District Council is registered with the Data Protection Act 1998 for the purpose of processing personal data in the performance of its legitimate business. Any information held by the Council will be processed in compliance with the principles set out in the Act. The preparation of the Breckland Local Plan Pre-Submission Publication is a public process and your full representation and address details will be made public for this purpose.

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

AECOM

Bird, Bat and Hedgerow Survey Report

Land West of Brandon Road, Swaffham

Abel Homes Ltd

Project Number: 60529778

28th September 2017

Quality information

Prepared by	Checked by	Approved by
Kevin Du Rose (Senior Ecologist) Mike Padfield (Principal Ecologist)	Anna Davies (Principal Ecologist)	Philip Kerrison (Associate Director)

Revision History

Revision	Revision date	Details	Authorized	Name	Position
0	28/9/17	First issue	-	-	-

Prepared for:

Paul LeGrice FCA BSc (Hons)
Managing Director
Abel Homes Ltd.
Neaton Business Park (North), Norwich Road, Watton IP25 6JB

Prepared by:

AECOM Infrastructure & Environment UK Limited
3 St. James Court
Whitefriars
Norwich
NR3 1RJ
UK

T: +44 1603 953 000
aecom.com

Table of Contents

Summary

AECOM was commissioned by Abel Homes Ltd to undertake bird, bat and hedgerow surveys of the site for a possible residential development at Swaffham, Norfolk. The central grid reference for the site is TF818073 and the boundary of the site is shown in Appendix A, Figure 1. The work was commissioned to provide further information on protected and notable habitats and species that may constrain or influence the design and implementation of proposed development on the site. The work will also inform the masterplan for the proposed development, and allow for mitigation to be included in the masterplan

In order to deliver this work bird, bat and hedgerow surveys were undertaken by appropriately experienced AECOM ecologists between March and September 2017.

A total of 50 bird species was recorded during the breeding bird survey visits and using the site as part of their territory. Of these 43 species were believed to be breeding on site or on adjoining land.

The site itself is primarily arable farmland and the bird assemblage reflected this by containing several birds typical of farmland such as skylark (*Alula arvensis*) and yellowhammer (*Emberiza citronella*) both of which are Red list species (Eaton *et al*. 2015). Additional species nesting on adjoining farmland were willow tit (*Poecile montanus*), Red List and barn owl (*Tyto alba*), Amber List. The northern extent of the site adjoins existing housing which supports good populations of birds associated with suburban garden habitats. This included house sparrow (*Passer domesticus*) and starling (*Sturnus vulgaris*) (both Red List species). The proposed development is located 240 m from the Breckland SPA and Breckland Forest SSSI. No Breckland Special Protection Area (SPA) qualifying bird species - nightjar (*Caprimulgus europaeus*), stone curlew (*Burhinus oedicnemus*) and woodlark (*Lullula arborea*) were noted during the surveys. A number of Schedule 1 species were recorded close to the site and used the site for foraging.

Bat activity comprised foraging and commuting activity of common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats. Activity was generally low and restricted to hedges, field margins and the mixed plantation woodland. Most records were of single bats either passing along the hedges or briefly foraging, with occasionally two or three bats foraging together, e.g. in and around the plantation woodland. On the static detectors at least five additional species were recorded in low numbers. The site was assessed as of District-to-Local value for commuting/foraging bats. A single common pipistrelle day roost of Local value was recorded in a mature hedgerow oak (*Quercus* robur) tree.

One hedgerow was classified as an ‘Important Hedgerow’ under the Hedgerow Regulations 1997.

Outline mitigation, compensation and enhancement measures should include the retention of habitat features, creation of off-site habitats, timing of work to avoid disturbance to nesting birds and sensitive lighting considerations in relation to nocturnal wildlife.

1. Introduction

Following a Preliminary Ecological Appraisal (PEA) undertaken in early 2017 (AECOM, 2017), AECOM was commissioned by Abel Homes Ltd to undertake bird, bat and hedgerow surveys of the site for a possible residential development at Swaffham, Norfolk. The central grid reference for the site is TF818073 and the boundary of the site is shown in Appendix A, Figure 1. The site is 13.4 ha in area. No details of the development are currently available, other than it will be housing with associated landscaping in the main arable field, with retention of the plantation woodland and the majority of the surrounding hedges.

The work was commissioned to provide further information on protected and notable habitats and species that may constrain or influence the design and implementation of the proposed development of the site. The work will also inform the masterplan for the proposed development, and allow for mitigation to be included in the masterplan rather than it being retrofitted at a later date. This report should be read in conjunction with the PEA for the site (AECOM, 2017).

In order to deliver this work surveys were undertaken by appropriately experienced ecologists between March and September 2017, to identify ecological features within the proposed development site and the wider potential zone of influence of the future development plans at this site. The potential zone of influence was defined with reference to the red line boundary as shown on Figure 1 and type of development. Additional details are provided in Section 2: Methods.

Results and the conservation value of the ecological receptors are discussed and options for the avoidance, mitigation or compensation of potential impacts recommended. These include impacts of the proposed development (where known) on identified ecological receptors, and potential enhancements to the biodiversity and ecosystem services.

2. Methods

2.1 Breeding Bird and Nocturnal Bird Survey

The main aim of the surveys was to investigate the breeding bird assemblage of the site with particular emphasis on species associated with the populations linked to the Breckland Special Protection Area (SPA) which is located 240m to the south of the site.

The surveys followed the Common Birds Census (CBC) mapping technique scaled down to six visits (Marchant, 1983). A survey transect covering all of the main bird habitats within the site and adjacent fields was walked at a slow pace to maximise the number of bird sightings (see Figure 1 for the route). The surveys avoided periods of strong winds, heavy rain, fog and low cloud. Birds were located by walking, listening and scanning by eye, with binoculars and a spotting scope. Birds were considered to be breeding if any of the following activity was noted:

- singing
- displaying
- carrying nest material
- nests or young found
- repetitively alarmed adults
- disturbance displaying
- carrying food
- territorial dispute.

Supplementary behavioural observations and notes were also made to help determine breeding territories as accurately as possible. In addition to the standard CBC approach, on each survey a one hour Vantage Point (VP) watch was spent scanning for birds of prey over the woodland to the south of the site (see Figure 1 for location). The main objective of the VP was to establish whether goshawk (*Accipiter gentilis*) were present in the adjoining woodland to the south.

The first survey was conducted in early March as this is the peak time to observe displaying goshawk and also a good time of year to find singing woodlark (*Lullula arborea)*. Six survey visits were conducted on the following dates: 8th March, 4th and 27th April, 16th May, 15th and 26th June 2017.

In addition to the CBC transect and goshawk survey, two nocturnal survey visits were conducted to establish whether nightjar (*Caprimulgus europaeus)* and stone curlews[1] (*Burhinus oedicnemus*) (both SPA designated species) were using land directly adjoining the site. The methodology involved walking the woodland edges and field margins of adjoining land and listening /looking for stone-curlews and nightjar. Survey dates were 26th June and 4th July 2017.

Two nocturnal surveys were undertaken for nightjar and barn owl during June and July. The survey area covered the site plus a 50m minimum buffer, extended to up to 500m (where accessible) for nightjar, woodlark and stone-curlew. The survey involved walking a transect covering all of the main bird habitats in and around the site with regular stops to listen for the calls of nightjar and stone-curlew.

The territory mapping analysis of the breeding bird survey followed the standard approach detailed in Marchant (1983).

[1] Comprehensive surveys for stone curlew that normally include a 1500m buffer were not proposed as recent survey data has already been compiled for the local area. However, the daytime/nocturnal bird surveys throughout the spring and summer included searches for stone curlew nesting in accessible areas within 500m of the site.

Birds were evaluated based on their conservation concern using the Red List for Birds (Eaton *et al*, 2015). The Red List for Birds uses standardised criteria to identify and assess 244 species with breeding, passage or wintering populations in the UK and assigned to the Red, Amber or Green lists of conservation concern. The legal status of the birds identified is also considered (see the PEA, (AECOM, 2016) for full details of legal protection).

2.2 Bat Activity Survey

Bat activity surveys were undertaken based on the assessment of the site as having overall low suitability for foraging/commuting bats (AECOM, 2016 and Collins, 2016). This is based on the site being dominated by a single large arable field adjacent to major road and housing, with light pollution to the east. The minimum survey effort requires three evening transect surveys in spring, summer and autumn along with 5 nights of static detector data per season per transect.

It was noted that the small block of mixed plantation woodland (to be retained by the development, but potentially indirectly impacted) may provide higher value foraging habitat, and additional static detector data was collected here (5 nights in spring, summer and autumn) along with an additional transect survey during the summer. In total, survey work comprised a walked transect in spring, two during the summer and one in the autumn, with static detectors placed on site in two locations for a minimum of 5 consecutive nights per season (spring, summer and autumn) (see transect and static detector locations in Appendix A, Figure 5,).

Each activity survey involved two surveyors walking a transect route which included a series of 'listening or wait points' located at potentially important features with regard to bats. At each 'wait point', surveyors recorded bat activity for three minutes using bat echolocation detectors. Any activity encountered whilst walking between points was also noted. The survey route was designed to include potential flight paths or foraging areas within the site, and also mature trees, which offer potential roost sites. The direction of travel along the transect was varied for each survey visit in order to ensure different areas of the transect were walked close to dusk.

Surveyors carried bat echolocation detectors (Batlogger M and Bat box duet detectors) to help determine which species were present. In accordance with the Bat Conservation Trust survey guidelines (Collins, 2016), dusk surveys were carried out from dusk to at least 2 hours after dusk. The time, location, number, species (where possible) and direction of flight were recorded for each bat pass (discrete burst of echolocation heard, or bat activity observed) encountered during the survey. Echolocation calls detected were recorded on the Batlogger to allow use of analysis software to verify bat calls where required.

Survey visits were conducted at dusk on 22nd May, 26th June, 24th August and 15th September 2017 in suitable weather conditions, with surveys scheduled to avoid nights with cold, wet or windy conditions (>7 °C). A transect effort index is generally provided for such surveys. It is calculated as the number of transects per survey multiplied by the number of hours and number of surveys. This was 45 minutes per hectare (1 x 2.5 x 4 = 10 transect hours / 13.4ha).

In addition to the transect surveys two static bat detectors (Anabat Express) were placed on the transect route in representative habitats present on site to record bats over a longer period of time. The locations of the static detectors are shown in Appendix A, on Figure 5. Location 1 was 2m above the ground in a tree in the plantation woodland block to the south of the site. Location 2 was in a mature oak tree in the hedge to the north west of the site.

The static detectors were set up to record bats from sunset to sunrise for the recommended minimum of five consecutive nights per season as follows:

- 8th June to 13th June (6 nights);
- 24th August to 29th August (6 nights); and
- 15th September to 19th September (5 nights).

2.3 Bat Roost Presence/Absence Survey

Bat roost feature inspections and presence/ absence surveys were undertaken at the trees identified on site in the PEA (AECOM, 2017) with moderate or high roost suitability. These were trees TN3, TN7 (High suitability) and TN16 (Moderate Suitability) (see Appendix A, Figure 10). This comprised a potential roost feature inspection where accessible (using a ladder, close focussing binoculars, endoscope and torch) and a series of presence / absence (dusk emergence/ dawn re-entry surveys) between May and September 2017.

Dusk emergence and dawn re-entry surveys were undertaken at the trees in accordance with guidance given in Collins (2016), based on the assessed roost suitability. The only potential roost feature on tree TN16 was a bird box and this was adequately inspected using a ladder and subsequently scoped out for further survey. The other two trees TN3 and TN7 were surveyed three times between May and September 2017.

Dusk emergence surveys started approximately 15 mins before sunset and ended 1.5 to 2 hours after sunset, with the dawn re-entry survey starting 1.5 to 2 hours before sunrise and ending 15 mins after sunrise. Surveys were only undertaken during suitable weather conditions, i.e. in temperatures above 7^{o}C and in the absence of rain, strong wind and fog.

Surveys were undertaken by suitably experienced bat surveyors located at a suitable viewpoint adjacent to each tree and were led by Principal Ecologist Mike Padfield (Class Licence 2015-11699-CLS-CLS). Equipment used during the surveys comprised a Batlogger M and Bat box duet detectors connected to Edirol R05 recording devices. Use was also made of static detectors (Anabat Express) during the surveys. Sound recordings were made to allow subsequent verification of species or species groups, where required.

2.4 Bat Data Analyses

The static detector data collected were analysed to determine the total number of bat passes for each species or species group (depending on the level of identification possible from the recordings made) and then used to derive a metric - the Bat Activity Index (BAI) (see section 2.4.1) for the bat activity at each survey location. The transect data were described in relation to species, observed behaviour, temporal and spatial trends. These analyses provide an indication of:

- Seasonal variation in species activity and composition at each survey location;
- Relative levels of bat activity across the site; and
- Potential roosting sites, important foraging areas and commuting routes.

2.4.1 Bat Activity Index (BAI)

BAI values were calculated by averaging the number of bat passes per hour for each static detector unit. The term ‘pass’ is defined as a single file made up of bat pulses of a single species i.e. this may be one bat in a file or many bats in a single file.

No guidance is available on what constitutes low, moderate or high bat activity based on number of passes. As such a relative scale is used by AECOM in this report where:

- **Very Low Activity** is mean of less than 2 passes per hour (at each survey location);
- **Low Activity** is a mean of 2 to 25 passes per hour;
- **Moderate Activity** is a mean of 26 to 99 passes per hour; and
- **High Activity** is a mean of over 100 passes per hour.

2.4.2 Roost types

Where bat roosts were found these were categorised as follows based on guidance in Collins (2016):

Day roost - A place where individual bats, or small groups of males, rest or shelter in the day but are rarely found by night in the summer.

Night roost - A place where bats rest or shelter in the night but are rarely found in the day. May be used by a single individual on occasion or it could be used regularly by the whole colony.

Feeding roost - A place where individual bats or a few individuals rest or feed during the night but are rarely present by day.

Transitional/occasional roost - Used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.

Swarming site - Where large numbers of males and females gather during late summer to autumn. Appear to be important mating sites.

Mating site - Where mating takes place from late summer and can continue through winter.

Maternity roost - Where female bats give birth and raise their young to independence.

Hibernation roost - Where bats may be found individually or together during winter. They have a constant cool temperature and high humidity.

Satellite roost - An alternative roost found in close proximity to the main nursery colony used by a few individual breeding females to small groups of breeding females throughout the breeding season.

2.4.3 Evaluation of value

An assessment of the relative ecology and nature conservation value of any bat roosts associated with the site has been determined using the principles described in *Valuing Bats in Ecological Assessment* (Wray *et. al*. 2010) (see Appendix B). Reference has also been made where required to:

- Species Conservation Status Reports - 3rd UK Habitats Directive Reporting 2013 (JNCC, 2013);
- UK Biodiversity Action Plan;
- Norfolk Biodiversity Action Plan;
- Distribution Atlas of Bats in Britain and Ireland 1980-1999 (Richardson, 2000);
- UK Mammals: Species Status and Population Trends (Battersby, 2005);
- Mammals of the British Isles Handbook (Harris and Yalden, 2008); and
- The State of the UK's Bats: National Bat Monitoring Programme Populations Trends 2011 (www.bats.org.uk).

2.5 Hedgerow Survey

A hedgerow survey was undertaken to determine whether the hedgerows on site are classed as 'Important Hedgerows' under the Hedgerow Regulations 1997 in terms of ecology (note that this ecology report does not cover archaeological or historical features). It also provides other relevant information on hedgerow structure and species for any future mitigation, compensation and enhancement.

Four hedgerows (TN1, TN5, TN12 and TN14) were identified in the PEA as requiring survey (see Appendix A, Figure 10). The hedgerows were surveyed in spring on the 22nd May 2017 during warm, dry weather in accordance with the DEFRA 2007 methodology. For the purposes of assessment

under the Hedgerow Regulations criteria up to three 30m transects were sampled within equal sections of the hedgerows. Following the site survey an assessment was made of whether the hedgerows meets the criteria as an 'important hedgerow' under the Hedgerow Regulations criteria and their ecological value (based on CIEEM, 2016).

A hedgerow is important (and is protected) if it is at least 30 years old and meets at least one of the following criteria:

- marks all or part of a parish boundary that existed before 1850;
- contains an archaeological feature such as a scheduled monument;
- is completely or partly in or next to an archaeological site listed on a Historic Environment Record (HER), (formerly a Sites and Monuments Record);
- marks the boundary of an estate or manor or looks to be related to any building or other feature that's part of the estate or manor that existed before 1600;
- is part of a field system or looks to be related to any building or other feature associated with the field system that existed before the Inclosure Acts (that is before 1845);
- contains protected species listed in the Wildlife and Countryside Act 1981 (i.e. Schedule 1 birds, Schedule 5 animals or Schedule 8 plants);
- contains species that are endangered, vulnerable and rare and identified in the British Red Data books; and
- includes woody species and associated features as specified in Schedule 1, Part II Criteria, paragraph 7(1) of the regulations.

2.6 Field Survey Limitations

Where habitat boundaries coincide with physical boundaries recorded on OS maps the resolution is as determined by the scale of mapping. Elsewhere, habitat mapping is as estimated in the field and/or recorded by hand-held GPS. Where areas of habitat are given they are approximate and should be verified by measurement on site where required for design or construction. While indicative locations of trees are recorded this does not replace requirements for detailed specialist arboricultural survey to *British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction*.

The spring static survey (planned for May) was postponed to early June due to a prolonged period of wet weather during mid-to-late May (there should be five consecutive days of suitable weather during the static surveys). This does not affect the findings as sufficient data were obtained to assess the bat species and activity on the site and data were collected for five consecutive days in early June.

There were no other survey limitations.

3. Results & Discussion

3.1 Birds

3.1.1 Desk Study

The desk study in the preliminary ecological appraisal (AECOM, 2017) confirmed the presence of bird species contributing to the designated interest of Breckland SPA (i.e. stone-curlew, woodlark and nightjar within the search area (up to 2km). Additional Schedule 1 species identified in the desk study that are likely to breed in the general area were goshawk, common crossbill (*Loxia curvirostra*), hobby (*Falco subbuteo*) and red kite (*Milvus milvus*).

There are no stone curlew records from land within or immediately adjacent to the site. The closest stone curlew record (a historic non-breeding field observation in 2005) was more than 650m to the north of the site. The RSPB conducted regular counts of stone curlews within the Breckland SPA between 2011 and 2014 and recorded stone curlews nesting approximately 1500m to the south of the site.

3.1.2 Survey Results

A total of 50 bird species were recorded during the breeding bird survey visits, of which 43 species were believed to be breeding on site or on adjoining land. All 50 species were likely to be using the site as part of their territory (see Appendix C). Figures 2 to 4 shows the estimated territory centres for all of the species believed to be breeding on or close to the site.

The site itself is primarily arable farmland and the bird assemblage reflects this by containing several of birds typical of farmland with 12 pairs of skylark (*Alula arvensis*) and 8 pairs of yellowhammer (*Emberiza citronella*), both of which are Red list species. Additional species nesting on adjoining farmland were willow tit (*Poecile montanus* -Red List) and barn owl (*Tyto alba* - Amber List). Both of these species were recorded foraging within the footprint of the scheme.

No stone-curlews were noted during any of the surveys of the site or adjacent fields.

The northern extent of the site adjoins existing housing which supports good populations of birds associated with suburban garden habitats. Numbers of territories/breeding pairs within gardens directly adjacent to the site included: 19 pairs of house sparrow (*Passer domesticus*), 8 pairs of starling (*Sturnus vulgaris*), (both Red List species), 23 pairs of dunnock (*Prunella modularis*), Amber List and 17 pairs of blackbird (*Turdus merula*), Green list.

To the south of the site there are extensive areas of woodland which provides potential habitat for SPA designated species such as woodlark, nightjar as well as Breckland species such as crossbill, goshawk and hobby. Although this area was outside the main survey area, transect walks (daytime and nocturnal) along the northern perimeter of the woodland found no sign of woodlark or nightjar in the woodland bordering the site and surrounding fields. Both species would require cleared areas with open ground for breeding. No such areas are currently present along the northern edge of this part of the forest or on site.

Two crossbills (Schedule 1) were observed nest building in the woodland c.200m to the south of the site (see Figure 4 for location).

A pair of adult goshawks (Schedule 1[2]) were recorded displaying over the block of woodland south of the site with activity centred just south of the golf course (c.1.2km west of the site, see Figure 4). It is presumed that breeding may have taken place at this location, as this pair was recorded directly over the site on several occasions. A second displaying pair was also visible south of the Vantage point mostly displaying over the next block of woodland c.1km to the south (west of Red Lodge Farm).

[2] Under the Wildlife & Countryside Act 1981 (as amended) Schedule 1 it is an offence to intentionally or recklessly disturb birds and their young at, on or near an 'active' nest:

The woodland blocks to the south of the site are also favoured by other birds of prey such as red kite (Schedule 1). Red kites were recorded on three occasions over the woodland and on two occasions seen directly over the site. Given the frequency of kite sightings it is believed this species breeds locally but not in the immediate vicinity of the site. We also observed large numbers of common buzzard (*Buteo buteo* - Green List species) over the woodland to the south of the site with 21 individuals observed in the air simultaneously on 8th March indicating a very high density of this species. Common buzzards were also recorded regularly over the site with four different separate breeding territories located in the woodland block to the south of the site.

An adult hobby was recorded over the woodlands to the south of the site on 15th June. Breeding on site or within the immediate surrounding land (up to c.200m) can be ruled out due to lack of suitable habitat although breeding is possible in woodland habitats further to the south.

The following species were recorded during the breeding bird surveys but were not believed to be breeding on or close to the site: rook (*Corvus frugilegus* - Green List), swift (*Apus apus* - Amber List), lesser black-backed gull (*Larus fusucs* - Amber List), herring gull (*Larus Argentatus* - Red List), black-headed gull (*Chroicocephalus ridibindus* - Amber List) and siskin (*Carduelis spinus* - Green List).

3.2 Bats

3.2.1 Desk Study

The desk study in the PEA report (AECOM, 2017) returned records of four species of bats within 1km of the site. These comprise flight records of pipistrelle species (*Pipistrellus* spp.), brown long-eared (*Plecotus auritus*) and Nathusius' pipistrelle (*Pipistellus nathusii*) bats. There are roost records within 1km of the site based on survey work undertaken by AECOM for the nearby Abel Homes Swans Nest development (URS, 2011). Surveys in 2011 found a brown long-eared bat tree roost 560m to the east of the site, and a common pipistrelle building roost 680m to the east of the site.

In the PEA report there were five trees identified on site that provided suitable roosting habitat for bats. These comprised two oak trees (TN3 and TN7) with high roost suitability, one ash (*Fraxinus excelsior*) tree (TN16) with moderate roost suitability and two oak trees with low roost suitability. The plantation woodland trees were grouped together and had overall low roost suitability based on the young age of the trees and species composition that included a high proportion of young conifer trees.

3.2.2 Bat Activity

Transects

The bat activity transect results are shown in Appendix A, Figures 6 to 9 and in Appendix D. Activity recorded comprised foraging and commuting activity of common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*) bats. Activity was generally low and restricted to hedges, field margins and the mixed plantation woodland. Most records were of single bats either passing along the hedges or briefly foraging, with occasionally 2 or 3 bats foraging together, e.g. in and around the plantation woodland. Most of the activity was recorded along hedge TN1 to the north-west of the site, the plantation at TN10 and southern hedge at TN12. There were very few bats recorded along the northern boundary (housing area) and eastern boundary (hedge by the road). No bats were seen or recorded flying over the main open field. A barn owl was recorded foraging on site during the June and August surveys.

Static Detectors

The full results are shown in Appendix D and summarised on Charts 1 and 2 below. At least seven species were recorded on the static bat detectors dominated by common pipistrelle, with low activity of soprano pipistrelle, and very low activity of noctule (*Nyctalus noctula*), brown long-eared, serotine (*Eptesicus serotinus*), an unknown Nyctalus bat (either noctule or Leisler's) and an unknown Myotis species and a single barbastelle (*Barbastella barbastellus*) pass.

During the spring activity was moderate along the hedge (Location 2) with a Bat Activity Index (BAI[3]) of 33.76 and low in the plantation woodland (Location 1) with a BAI of 9.28. In the summer at both locations activity was low with a BAI of 5.3 at the hedge and a BAI of 4.87 at the plantation woodland. In the autumn activity was very low at the hedge with a BAI of 0.85 and a BAI of 5.72 at the plantation woodland.

Chart 1 – Summary of Bat Activity Recorded on the Static Detectors

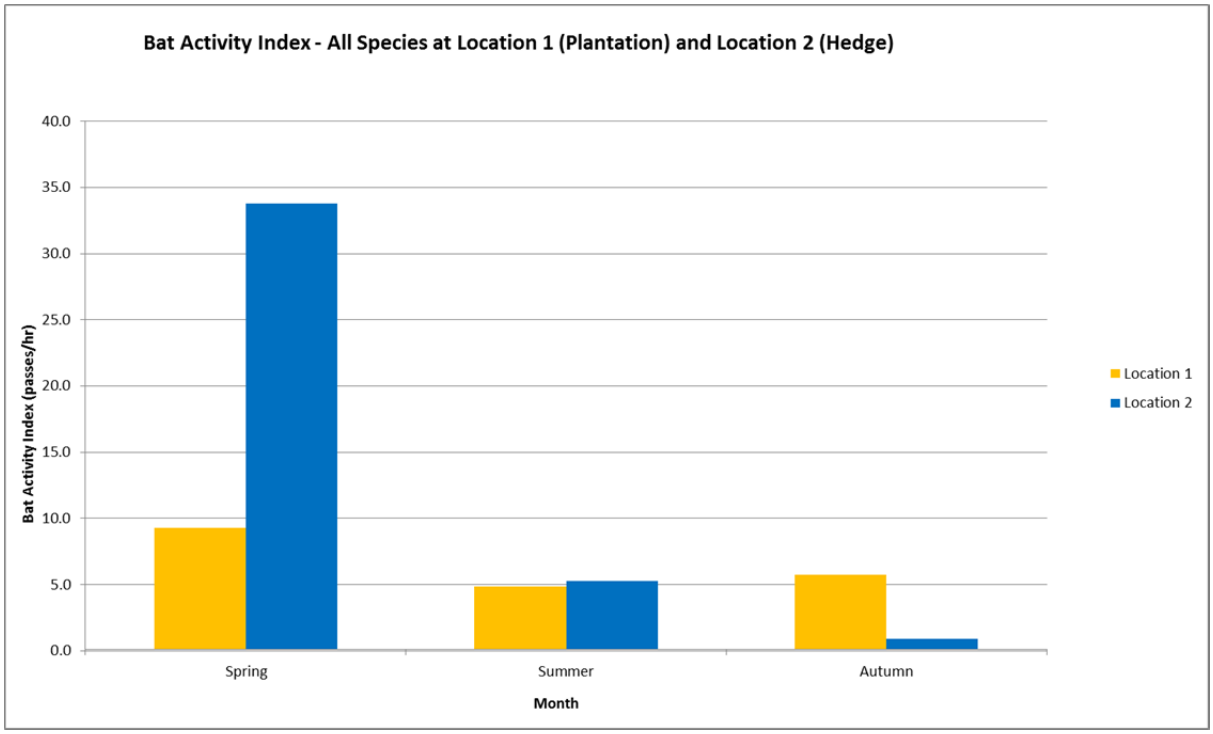
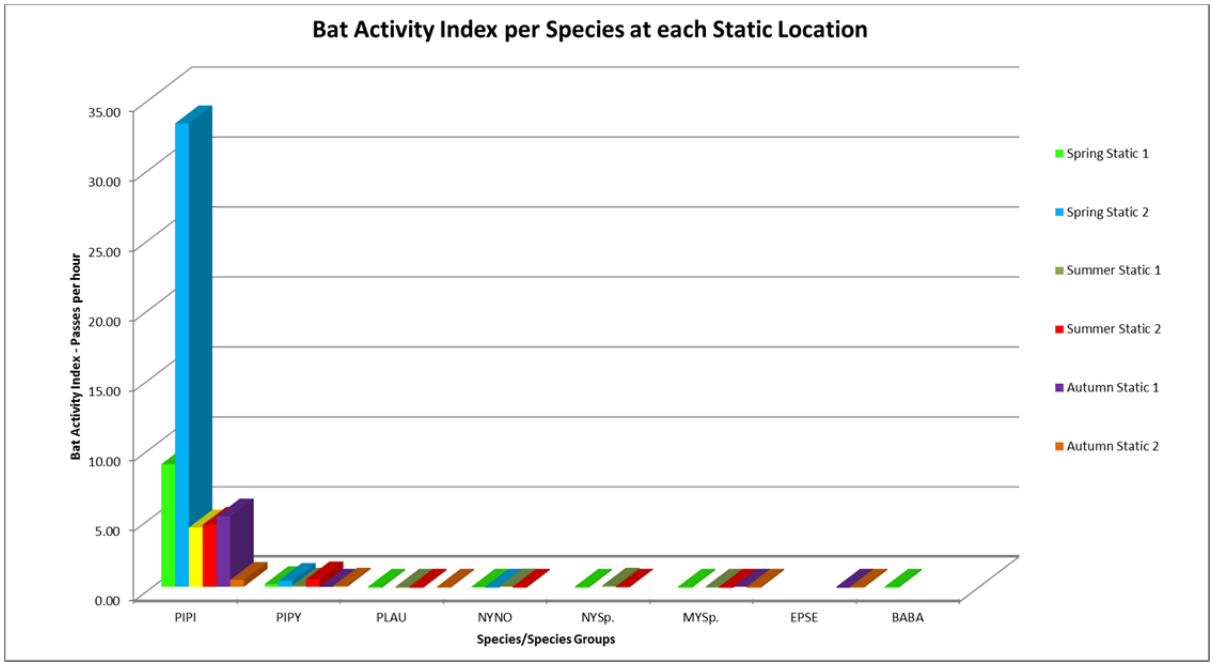


Chart 2 – Summary of Bat Activity of Each Species (see key to species below[4])



[3] Bat Activity Index = number of bat 'passes' per hour see Method section

[4] PIPI (Common pipistrelle) PIPY (Soprano pipistrelle) PLAU (Brown long-eared) MYsp. (Myotis species) NYNO (Noctule), EPSE (Serotine) EPSE (Serotine) NYsp. (noctule or Leisler's), BABA (barbastelle).

3.2.3 Bat Roosts

See full results in Appendix D. One roost was recorded on site at a mature oak tree at TN3 (See Appendix A, Figure 10 and Appendix F, Photo 1). This contains a small non-breeding day-roost of a single common pipistrelle bat.

Off-site housing to the north and Snake's Pit farm >1km to the west may contain roosting bats, with bats from these roosts likely to use suitable habitats on site (e.g. hedges and plantation) for commuting and foraging.

3.3 Hedgerow Survey

Four hedgerows were surveyed at TN1, TN5, TN12 and TN14 (see locations in Appendix A, Figure 10, results in Appendix E, and photos in Appendix F). The hedgerow at TN1 is species-rich with a high number of mature trees and an average of 5.5 species in the 30m survey sections. Species include field maple (*Acer campestre*), blackthorn (*Prunus spinosa*), hawthorn (*Crataegus monogyna*), ash, elder (*Sambucus nigra*), pedunculate oak (*Quercus robur*), wild cherry (*Prunus avium*) and hornbeam (*Carpinus betulus*). Hedge TN1 has a confirmed common pipistrelle bat roost in tree TN3 (a Wildlife & Countryside Act Schedule 5 animal) which classifies the hedge as an 'Important Hedgerow'.

Hedge TN5 is a short section of hedge, (c.65m) with a single mature oak tree. It is species rich with 5 species in the 30m survey section. Hedges TN12 and TN14 are species-poor with an average of up to 2 species in the 30m survey sections. Hedges TN5, TN12 and TN14 are **not** classified as 'Important Hedgerows' in terms of ecology.

4. Conclusions and Recommendations

4.1 Statutory Designated Sites

See the PEA (AECOM, 2017) for full details. The proposed development is located 240m from the Breckland SPA and Breckland Forest SSSI, close enough for them to be a material consideration when determining planning application(s). As stated in the PEA (AECOM, 2017) at this distance the developer and the Local Planning Authority will need to consult Natural England on whether the proposed development is likely to impact the SPA and SSSI.

The SPA is designated for stone curlew, woodlark and nightjar. The SSSI is also designated for woodlark and nightjar (along with rare vascular plants). As none of the qualifying bird species has been found on or close to the site (see species accounts below) and the site is located outside the 1,500m buffer zone safeguarding stone curlew in the Breckland SPA (Liley & Hopkins, 2016), birds associated with the SPA and SSSI are unlikely to constrain future development.

4.2 Birds

Stone-curlew (Schedule 1, SPA Qualifying species)

This species was not recorded on site and there are no breeding records within 1500m of the site. Sharp *et. al.* (2008) conclude that new housing developments need to be at least 1500m from any arable land suitable for stone curlews for there to be no effect on their distribution. The site is generally unsuitable for breeding due to the disturbance from main road, lighting and adjacent housing. The nearest breeding records are 1500m to the south and separated from the site by arable fields and two woodland blocks. At this distance and location the proposed development is unlikely to disturb this species. However, the potential presence of a foraging stone curlew cannot be ruled out, nor the potential for future breeding as a result of changes in land management/ cropping regimes or the expansion of this species away from core breeding areas.

Nightjar (Schedule 1, SPA Qualifying species)

No nightjars were found in woodland directly adjoining the site and surrounding fields. Therefore no impact is expected.

Woodlark (Schedule 1, SPA Qualifying species)

No woodlarks were found in woodland directly adjoining the site and surrounding fields. Therefore no impact is expected.

Barn owl (Schedule 1)

The survey found barn owls nesting approximately 300m from the site footprint with owls utilising the site as part of their core hunting territory as recorded during the nocturnal surveys. The current barn owl territory associated with the site will therefore be reduced due to the loss of part of their hunting territory. There are currently few opportunities for barn owls to extend their hunting territory as there is little suitable hunting habitat on surrounding land, i.e. land further south is wooded and the site is flanked by housing to the north and west. Foraging habitat compensation in adjacent fields is recommended to ensure no net loss to foraging habitat.

Goshawk (Schedule 1)

A pair of goshawk was recorded displaying over the woodland approximately 300m south of the site although display was centred just over 1km to the south east where nesting is assumed to have occurred. Birds were occasionally recorded directly over the site footprint. Given the close proximity of this territory to the site a potential increase in human presence in this area could have a negative effect on the species. Mitigation will need to ensure no access by residents into the SSSI/SPA to the south (as is currently the situation).

Willow tit (Red List species)

A pair of willow tits was found nesting close to the site and seen carrying food from within the site to their nest. Willow tits are virtually extinct in Norfolk and are probably confined to their last known site in Swaffham forest. The reasons for the decline are not fully understood although the three hypothesis are: habitat loss; increased predation and increased competition by blue and great tits (see Lewis *et al.* 2009 for details). This species excavates its own nest hole usually in a rotten birch or alder stump in areas where blue and great tits do not breed due to the lack of nest sites. It is possible that the proposed development could lead to an increase in the numbers of blue and great tits in the area with the increased opportunity presented by householders providing nest boxes and feeding stations. This could increase the local population of blue and great tits and increase competition between willow tits and blue and great tits resulting in their possible decline.

Red kite (Schedule 1)

This species was recorded but is not believed to breed within 1km of the site and therefore no impact is expected.

Hobby (Schedule 1)

This species was recorded but is not believed to breed within 1km of the site and therefore no impact is expected.

Other farmland birds

Within the site boundary the bird population is typical of lowland farmland with several species typical of hedgerows and arable fields. Species include blackbird, kestrel, wren skylark and yellowhammer. Land-take would most likely reduce the species present within this area. Species directly impacted would be an estimated 2 pairs of skylark and 4 pairs of yellowhammer (both Red List species). The effects of the development would also extend outside the footprint of the development because several of the species use the site as part of their home ranges. The area surrounding the site forms a block of farmland that is bordered by woodland to the south, roads on both the west and east side and residential to the north. The proposed development would result in a loss of approximately 25% of this land and would encroach almost to the centre of this block of farmland. The effect would be to reduce the integrity of this farmland block and make the remaining land less viable for farmland birds. Habitat compensation on adjacent fields (subject to landowner agreement) would be an acceptable form of mitigation to ensure no net loss in breeding habitat.

Bird Mitigation and Compensation

Potential disturbance pathways include disturbance, habitat loss, lighting and noise during construction, and lighting, traffic and human disturbance during operation.

In general where vegetation (including hedges, scrub and ground vegetation) is to be cleared as part of a future development, this should be undertaken outside of breeding bird season (1st March to 31st August). Habitats on and surrounding the site used by nesting birds should be retained where possible (e.g. hedges and woodland) or removal restricted to the minimum needed for site access. As field margins will be lost on site, replacements should be created on fields to the south and west suitable for ground-nesting birds as well as foraging barn owls. This will also require that access to these habitats is restricted to farming operations only so there is no disturbance by residents (e.g. dog walkers) during the operation of the site to ensure success of ground nesting species such as skylark.

Although the barn owl tree roost will be retained it is recommended that an additional tree-mounted nest box is provided to the west of the site and at least 500m west of the Brandon road. Lighting consideration should be sensitive to nocturnal bird species (e.g. barn owl) and the considerations given for bats in Appendix G should be followed.

Noting the possible competition between willow tits and blue tits/great tits, no bird box provision is recommended that may encourage blue tits and great tits. Bird boxes could comprise up to five sparrow terraces or swift boxes on some of the new houses.

Any new landscape planting should include some dense scrub that offers relatively safe nesting and foraging opportunities for birds.

4.3 Bats

4.3.1 Value of Roosting, Commuting and Foraging Habitats

The single common pipistrelle day roost is assessed as of **Local Value** (see Appendix B). At least seven species of bats were recorded using the site during transect, static and emergence/re-entry surveys in very low-to-moderate numbers. Activity was dominated by common pipistrelle, with soprano pipistrelle, and low numbers of noctule, brown long-eared, serotine, an unknown Nyctalus bat (either noctule of Leisler's), an unknown Myotis species (potentially Daubenton's, Natterer's or other species) and a single pass of a barbastelle.

The site is located in habitats that are likely to be functionally important as foraging habitat for the maintenance of the bat roosts on site and potentially the wider area. The site is provisionally assessed as of **Local to District Value** to commuting and foraging bats based on the species using the site, numbers and habitat types.

Based on the context of the proposed development (i.e. major building work over five years and associated temporary and permanent habitat loss, followed by provision of new housing with associated human activity and lighting), there is likely to be disturbance to foraging and commuting habitats. The common pipistrelle day roost and surrounding should be retained and protected from disturbance during construction and operation. Where this is not possible then a European Protected Species Mitigation Licence would be required.

Prior to mitigation, the habitats used by foraging and commuting bats on site are likely to be affected by the proposed development. Mitigation should include developing the masterplan to retain existing hedges and woodland and provide links through the site to adjacent habitats. Lighting of the site should avoid the main habitats used by bats (i.e. hedges and plantation woodland) and should following the guidance in Appendix G.

4.4 Hedgerows

Hedgerow TN1 is classified as an 'important hedgerow' under the Hedgerow Regulations 1997. In terms of EcIA guidance (CIEEM, 2016) this hedgerow is assessed as of **District Value**. Other hedges are of **Local Value**. Native hedgerows are local BAP habitats (LBAP) and priority habitats under the NERC Act 2006. The hedges do not meet the criteria for selection of County Wildlife Site as they do not link County Wildlife Sites or habitats of County Wildlife Value (based on the Criteria for the selection of County Wildlife Sites in Norfolk 2010 Version).

Any unmitigated loss of the hedges will have significant negative effect at the Local (Hedges TN12 and TN14) to District scale (Hedges TN1 and TN5). The configuration of the site means it is unlikely that there would be a requirement for extensive loss of hedgerow habitat as only minimal hedgerow loss is required for access. As such hedge TN1 is unlikely to be affected.

The hedgerows provide habitat and shelter to species, such as nesting birds and foraging bats, particularly Hedge TN1 which had relatively higher levels of bat activity. In developing the master plan for the site, an attempt should be made to retain existing hedgerows. If this can be delivered then there would be no conflict with planning policy. The east-west and north-south hedgerow corridors should be maintained and enhanced to maintain cohesiveness in the landscape and facilitate the movement of species.

Where hedgerow loss is unavoidable, appropriate compensation is required. Hedgerow loss should be compensated as a minimum on a two-for-one basis, to demonstrate net gain. There is considerable scope to reinforce habitat connectivity along the northern and western site boundary through new woody plantings, and this would be likely to compensate for any hedgerow loss within the site. New hedgerow plantings or alternative woodland or scrub plantings should be species-rich

and comprise native species obtained from a reputable local grower who can source-identify their planting stock. Species should include hawthorn, hornbeam, hazel, field maple and oak. A suitably qualified landscape professional should prepare a landscape plan for the site with ecological input where required. Consideration should be given to the location, species composition, size and structure of any replacement hedges.

4.5 Recommendations for further work

At tree TN3 bat survey data would need to be updated within the most recent survey season for a bat mitigation licence if the bat roost is to be disturbed, modified or lost.

Prior to site work starting a check for nesting birds is recommended to assess the current risks, particularly to any Schedule 1 species nesting on or close to the site.

The constraints outlined here will need to be reassessed if there is a significant change to the type or scale of development proposed, or if there are any significant changes in the use or management of the land that would affect the habitats and species. If a planning application is made two years or more after this report (i.e. October 2019) it would be advisable to review and update the survey data.

4.6 Opportunities for Ecological Enhancement

There are opportunities to design the development to achieve beneficial ecological enhancement, using guidance in the Local Biodiversity Action Plan. These include:

- Ensure the establishment of replacement hedgerow trees either through hedgerow management or new planting of suitable native stock.
- Establish new hedgerows including new Scot's pine hedges which are typical of Breckland.
- Increase the diversity of the eastern boundary hedge and establish more hedgerow trees at this location.
- Provide bat boxes in the plantation woodland/hedgerow trees.
- Provide integrated swift/bird boxes on the houses.

5. References

AECOM (2017) Brandon Road Swaffham Preliminary Ecological Appraisal Report for Abel Homes Ltd.

CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater and Coastal Second Edition January 2016

Collins, J. (ed.) (2016) *Bat surveys for professional ecologists good practice guidelines* 3rd Edition. The Bat Conservation Trust, London

Defra (2007) Hedgerow Survey Handbook. A standard procedure for local surveys in the UK. Defra, London.

Gilbert, G., Gibbons, D. and Evans, J. (1998) Bird Monitoring Methods. RSPB

Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708–746.

Joint Nature Conservation Committee (2010) *Handbook for phase 1 habitat survey – a technique for environmental audit*. Joint Nature Conservation Committee, Peterborough.

Joint Nature Conservation Committee (2013) Species Conservation Status Reports - 3rd UK Habitats Directive Reporting 2013. Joint Nature Conservation Committee, Peterborough.

Lewis, A, Amor, A, Chorman, E, Stewart, F (2009) The decline of the WillowTit in Britain British Birds 102 . July 2009 . 386-393.

Liley, D. and Hoskin, R. (2016) *Habitat Regulations Assessment of the Breckland Local Plan Part 1 - Preferred Site Options and Settlement Boundaries*. Footprint Ecology, unpublished report for Breckland Council

Maddock, A. (2010) *UK Biodiversity Action Plan Priority Habitat Descriptions*. JNCC, Peterborough

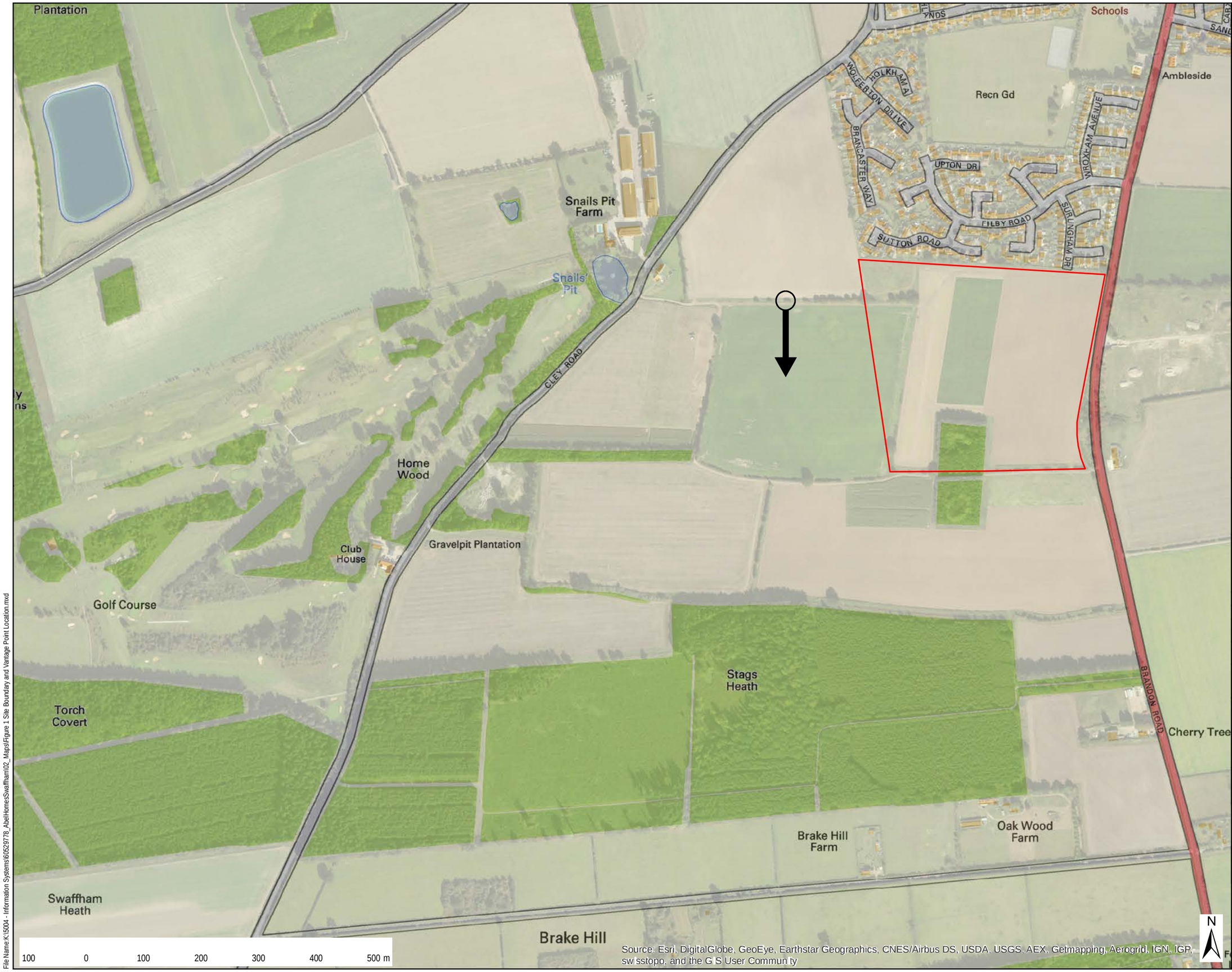
Sharp, J., Clarke, R. T., Liley, D. & & Green, R. E. (2008). The effect of housing development and roads on the distribution of stone curlews in the Brecks. Unpublished report, Footprint Ecology, Wareham, Dorset.

URS (2011) *Swans Nest Land, Swaffham Ecology Report*. Unpublished Technical Report August 2011

Appendix A Figures

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document



THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Site Boundary
- Vantage Point Location

Purpose of Issue: DRAFT

Client: ABEL HOMES LTD

Project Title: ABEL HOMES SWAFFHAM

Drawing Title: SITE BOUNDARY AND VANTAGE POINT LOCATION

Drawn	Checked	Approved	Date
JW	CN	KDR	14/09/2017

AECOM Internal Project No.	Scale @ A3
60529778	1:6,000

AECOM
Midpoint
Alençon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

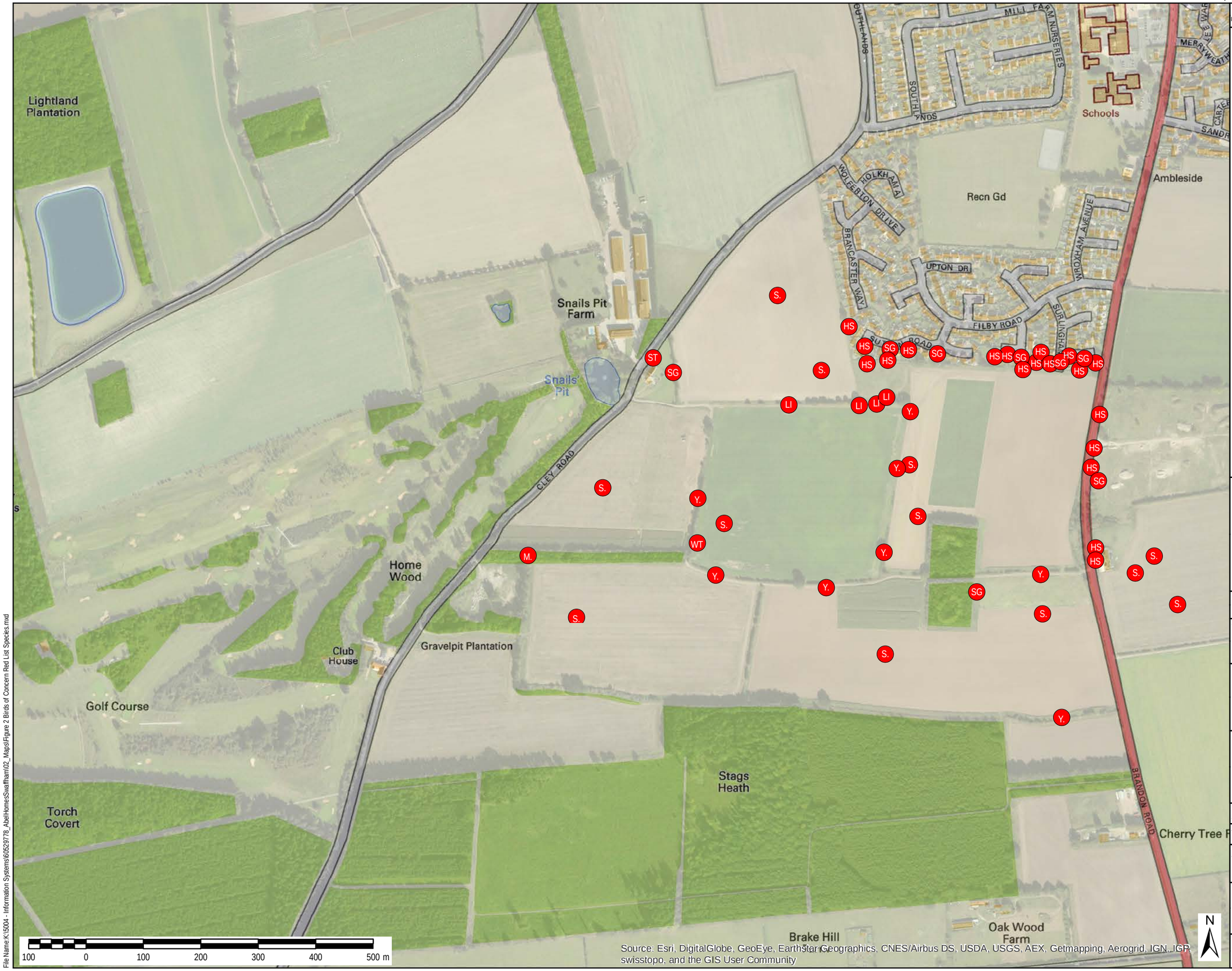
Drawing Number: FIGURE 1

Rev:

File Name:K:\5004 - Information Systems\60529778_AbelHomesSwaffham\02_Maps\Figure 1 Site Boundary and Vantage Point Location.mxd

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

Red List Species

BOCC Species

Code	Name
HS	House Sparrow
LI	Linnet
M.	Mistle Thrush
S.	Skylark
SG	Starling
ST	Song Thrush
WT	Willow Tit
Y.	Yellowhammer

Purpose of Issue: DRAFT

Client: ABEL HOMES LTD

Project Title: ABEL HOMES SWAFFHAM

Drawing Title: BIRDS OF CONSERVATION CONCERN RED LIST SPECIES

Drawn	Checked	Approved	Date
JW	CN	KDR	14/09/2017

AECOM Internal Project No.	Scale @ A3
60529778	1:6,000

AECOM
Midpoint
Alençon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

Drawing Number: FIGURE 2

Rev:

File Name:K:\5004 - Information Systems\60529778_AbelHomesSwaffham\02_Maps\Figure 2 Birds of Concern Red List Species.mxd

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

Amber List Species

BOCC Species

Code	Name
BF	Bullfinch
BO	Barn Owl *
D.	Dunnock
HM	House Martin
K.	Kestrel
MA	Mallard
SD	Stock Dove
TO	Tawny Owl

Schedule 1 Species Marked with an Asterisk (*)

Purpose of Issue: DRAFT

Client: ABEL HOMES LTD

Project Title: ABEL HOMES SWAFFHAM

Drawing Title: BIRDS OF CONSERVATION CONCERN AMBER LIST SPECIES

Drawn	Checked	Approved	Date
JW	CN	KDR	14/09/2017

AECOM Internal Project No.	Scale @ A3
60529778	1:6,000

AECOM
Midpoint
Alençon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

Drawing Number: FIGURE 3

Rev:

File Name:K:\5004 - Information Systems\60529778_AbelHomesSwaffham\02_Maps\Figure 3 Birds of Concern Amber List Species.mxd

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

Green List Species

BOCC Species

Code	Name
B.	Blackbird
BC	Blackcap
BT	Blue Tit
BZ	Buzzard
C.	Carrion Crow
CC	Chiffchaff
CD	Collared Dove
CH	Chaffinch
CR	Crossbill Common *
CT	Coal Tit
GC	Goldcrest
GI	Goshawk *
GO	Goldfinch
GR	Greenfinch
GT	Great Tit
J.	Jay
JD	Jackdaw
MG	Magpie
PH	Pheasant
PW	Pied Wagtail
R.	Robin
RL	Red legged Partridge
SH	Sparrowhawk
SL	Swallow
WH	Whitethroat
WR	Wren

Schedule 1 Species Marked with an Asterisk (*)

Purpose of Issue: DRAFT

Client: ABEL HOMES LTD

Project Title: ABEL HOMES SWAFFHAM

Drawing Title: BIRDS OF CONSERVATION CONCERN GREEN LIST SPECIES

Drawn	Checked	Approved	Date
JW	CN	KDR	14/09/2017

AECOM Internal Project No.	Scale @ A3
60529778	1:6,000

AECOM
Midpoint
Alencon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

Drawing Number: FIGURE 4

Rev:

File Name:K:\5004 - Information Systems\60529778_AbelHomesSwaffham\02_Maps\Figure 4 Birds of Concern Green List Species.mxd

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Site Boundary
- Bat Transect Route
- Wait Point
- Static Detector Location

Purpose of Issue: DRAFT

Client: ABEL HOMES LTD

Project Title: ABEL HOMES SWAFFHAM

Drawing Title: BAT ACTIVITY SURVEY DETAILS

Drawn	Checked	Approved	Date
JW	CN	KDR	25/09/2017

AECOM Internal Project No.	Scale @ A3
60529778	1:2,500

AECOM
Midpoint
Alençon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

Drawing Number: FIGURE 5

Rev:

File Name:K:\5004 - Information Systems\60529778_AbelHomesSwaffham\02_Maps\Figure 5 Transect Route and Wait Point Location .mxd

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Site Boundary
- Bat Survey Result
- Bat Survey Flight Line
- Bat Transect Route

Purpose of Issue: DRAFT

Client: ABEL HOMES LTD

Project Title: ABEL HOMES SWAFFHAM

Drawing Title: BAT ACTIVITY SURVEY RESULTS MAY 2017

Drawn	Checked	Approved	Date
JW	CN	KDR	25/09/2017

AECOM Internal Project No.	Scale @ A3
60529778	1:2,500

AECOM
Midpoint
Alencon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

Drawing Number: FIGURE 6

Rev:

File Name:K:\5004 - Information Systems\60529778_AbelHomesSwaffham\02_Maps\Figure 6 Bat Activity Survey Results May 2017.mxd

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Site Boundary
- Bat Survey Result
- Bat Survey Flight Line
- Bat Transect Route

Purpose of Issue: DRAFT

Client: ABEL HOMES LTD

Project Title: ABEL HOMES SWAFFHAM

Drawing Title: BAT ACTIVITY SURVEY RESULTS JUNE 2017

Drawn	Checked	Approved	Date
JW	CN	KDR	25/09/2017

AECOM Internal Project No.	Scale @ A3
60529778	1:2,500

AECOM
Midpoint
Alençon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

Drawing Number: FIGURE 7

Rev:

File Name:K:\5004 - Information Systems\60529778_AbelHomesSwaffham\02_Maps\Figure 7 Bat Activity Survey Results June 2017.mxd

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Site Boundary
- Bat Survey Result
- Bat Survey Flight Line
- Bat Transect Route

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Purpose of Issue: DRAFT

Client: ABEL HOMES LTD

Project Title: ABEL HOMES SWAFFHAM

Drawing Title: BAT ACTIVITY SURVEY RESULTS AUGUST 2017

Drawn	Checked	Approved	Date
JW	CN	KDR	25/09/2017

AECOM Internal Project No.	Scale @ A3
60529778	1:2,500

AECOM
Midpoint
Alencon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

Drawing Number: FIGURE 8

Rev:

File Name:K:\5004 - Information Systems\60529778_AbelHomesSwaffham\02_Maps\Figure 8 Bat Activity Survey Results August 2017.mxd

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Site Boundary
- Bat Survey Result
- Bat Survey Flight Line
- Bat Transect Route

Purpose of Issue: DRAFT

Client: ABEL HOMES LTD

Project Title: ABEL HOMES SWAFFHAM

Drawing Title: BAT ACTIVITY SURVEY RESULTS SEPTEMBER 2017

Drawn	Checked	Approved	Date
JW	CN	KDR	25/09/2017

AECOM Internal Project No.	Scale @ A3
60529778	1:2,500

AECOM
Midpoint
Alençon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

Drawing Number: FIGURE 9

Rev:

File Name:K:\5004 - Information Systems\60529778_AbelHomesSwaffham\02_Maps\Figure 9 Bat Activity Survey Results September 2017.mxd

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Site boundary
- Broadleaved parkland /scattered tree
- Scrub - scattered
- Target note
- Photo location
- Defunct hedge - species-poor
- Fence
- Hedge with trees - native species-rich
- Intact hedge - species-poor
- Bare ground
- Bracken - scattered
- Broadleaved woodland - plantation
- Buildings
- A — Cultivated/disturbed land - arable
- I — Improved grassland
- Mixed woodland - plantation
- SI — Poor semi-improved grassland
- Scrub - dense/continuous

Purpose of Issue: DRAFT

Client: ABEL HOMES

Project Title: BRANDON ROAD WEST, SWAFFHAM

Drawing Title: PHASE 1 HABITAT MAP

Drawn	Checked	Approved	Date
SJ	AK	MP	23/12/2016

AECOM Internal Project No.	Scale @ A3
60529778	1:3,000

AECOM
Scott House
Alençon Link, Basingstoke
Hampshire, RG21 7PP
Telephone (01256) 310200
Fax (01256) 310201
www.aecom.com

Drawing Number: FIGURE **10**

Rev: 0

File Name:I:\5004 - Information Systems\60529778_Brandon_Road_West\02_Maps\Figure x - Phase 1.mxd

Appendix B Valuing Bat Roosts in Ecological Impact Assessment

Tables and valuation method for bat roosts are based on Wray *et al* (2010). Species and roost categories relevant to the Site are highlighted in grey.

Table C1 Categorising bats by distribution and rarity

Rarity within range	England
Rarest (popn. under 10,000)	Greater horseshoe (*Rhinolophus ferrumequinum*) Bechstein's (*Myotis bechsteinii*) Alcathoe (*Myotis alcathoe*) Greater mouse-eared (*Myotis myotis*) Barbastelle (*Barbastella barbastellus*) Grey long-eared (*Plecotus austriacus*)
Rarer (popn. 10,000 – 100,000)	Lesser horseshoe (*Rhinolophus hipposideros*) Whiskered (*Myotis mystacinus*) Brandt's (*Myotis brandtii*) Daubenton's (*Myotis daubentonii*) Natterer's (Myotis nattereri) Leisler's (*Nyctalus leisleri*) Noctule (*Nyctalus noctula*) Nathusius' pipistrelle (*Pipistrellus nathusii*) Serotine (*Eptesicus serotinus*)
Common (popn. Over 100,000)	Common pipistrelle (*Pipistrellus pipistrellus*) Soprano pipistrelle (*Pipistrellus pygmaeus*) Brown long-eared (*Plecotus auritus*)

Table C2 Valuing Bat Roosts

Geographic frame of reference	Roost types
District, Local	Feeding perches (common species) Individual bats (common species) Small numbers of non-breeding bats (common species) Mating sites (common species)
County	Maternity sites (common species) Small numbers of hibernating bats (common and rarer species) Feeding perches (rarer/rarest species) Individual bats (rarer/rarest species) Small numbers of non-breeding bats (rarer/rarest species)
Regional	Mating sites (rarer/rarest species) including well used swarming sites Maternity sites (rarer species) Hibernation sites (rarest species) Significant hibernation sites for rarer/rarest species or all species assemblages
National/UK	Maternity sites (rarest species) Sites meeting SSSI guidelines
International	SAC sites

Table C3 Valuing commuting routes

Species	Number of bats	Roosts/potential roosts nearby	Type and complexity of linear features
Common (2)	Individual bats (5)	None (1)	Absence of (other) linear features (1)
		Small number (3)	Unvegetated fences/walls and large field sizes (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Walls, gappy or flailed hedgerows, isolated well grown hedgerows, and moderate field sizes (3)
		Large number of roosts, or close to a nationally important/protected site for the species (5)	Well-grown and well-connected hedgerows/tree lines, small field sizes (4)
Rarest (20)	Large number of bats (20)	Close to or within an internationally important/ protected site for the species(20)	Complex network of mature well-established hedgerows, tree line, small fields and rivers/streams (5)

(Note this assessment excludes the single pass of a barbastelle bat, which was a chance occurrence and was not shown to be regularly using the site)

Table C4 Valuing foraging areas

Species	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics
Common (2)	Individual bats (5)	None (1)	Industrial or other site without established vegetation (1)
		Small number (3)	Surburban areas or intensive arable land (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)
		Large number of roosts, or close to a nationally important site for the species (5)	Larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)
Rarest (20)	Large number of bats (20)	Close to or within a SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)

Scores in the four columns of each table above C3 and C4 are added up to provide an overall score to determine the value of commuting routes and foraging areas as per Table C5.

Table C5 Scoring system for valuing commuting and foraging bats

Geographic frame of reference	Score
International	>50
National	41 - 50
Regional	31 - 40
County	21 - 30
District/local or parish	11 - 20
Not important	1 - 10

Appendix C Bird Survey Results

Estimated number of breeding bird territories believed to be nesting within or close to the site

Species	Scientific name	Estimated number of territories/pairs	Conservation status[5]
Barn owl	*Tyto alba*	1	BOCC Amber List
Blackbird	*Thurdus merula*	17	BOCC Green List
Blackcap	*Sylvia atricapilla*	7	BOCC Green List
Blue tit	*Parus caerulus*	7	BOCC Green List
Bullfinch	*Pyrrhula pyrrhula*	1	BOCC Amber List, NERC
Carrion crow	*Corvus corone*	2	BOCC Green List
Chiffchaff	*Phylloscopus colybita*	3	BOCC Green List
Collared dove	*Streptopelia decaocta*	2	BOCC Green List
Chaffinch	*Fringilla coelebs*	15	BOCC Green List
Common buzzard	*Buteo buteo*	4	BOCC Green List
Common crossbill	*Loxia curvirostra*	1	BOCC Green List (Schedule 1)
Coal tit	*Parus ater*	2	BOCC Green List
Dunnock	*Prunella modularis*	23	BOCC Amber List, NERC
Goldcrest	*Regulus regulus*	3	BOCC Green List
Goshawk	*Accipiter gentilis*	1	BOCC Green List (Schedule 1)
Goldfinch	*Carduelis carduelis*	7	BOCC Green List
Greenfinch	*Carduelis chloris*	5	BOCC Green List
Great tit	*Parus major*	9	BOCC Green List
House martin	*Delichon urbica*	2	BOCC Amber List
House sparrow	*Passer domesticus*	19	BOCC Red List, NERC
Jay	*Garrulus glandarius*	1	BOCC Green List
Jackdaw	*Corvus monedula*	1	BOCC Green List
Kestrel	*Falco tinnunculus*	1	BOCC Amber List
Linnet	*Carduelis cannibina*	4	BOCC Red List, NERC
Mistle thrush	*Turdus viscivorus*	1	BOCC Red List
Mallard	*Anas platyrhychos*	1	BOCC Amber List
Magpie	*Pica pica*	1	BOCC Green List
Pheasant	*Phasianus colchicus*	4	BOCC Green List
Pied wagtail	*Motacilla alba*	2	BOCC Green List
Robin	*Erithacus rubecula*	14	BOCC Green List
Red-legged partridge	*Alectoris rufa*	7	BOCC Green List
Sky lark	*Alauda arvensis*	12	BOCC Red List, NERC
Stock dove	*Columba oenas*	2	BOCC Amber List
Starling	*Sturnus vulgaris*	8	BOCC Red List, NERC
Sparrowhawk	*Accipiter nisus*	1	BOCC Green List
Swallow	*Hirundo rustica*	2	BOCC Green List

[5] Conservations status: Birds of Conservation Concern 4 (BOCC List), National Environment Research Council (NERC) Species of Principal Importance, International Union for the Conservation of Nature (IUCN) Red List of Threatened Species.

Song thrush	*Turdus philomelos*	1	BOCC Red List, NERC
Tawny owl	*Strix aluco*	2	BOCC Amber List
Whitethroat	*Sylvia communis*	3	BOCC Green List
Wood pigeon	*Columba palumbus*	-	Largest flock was 18 birds
Wren	*Troglodytes troglodytes*	14	BOCC Green List
Willow tit	*Poecile montanus*	1	BOCC Red List, NERC
Yellowhammer	*Emberiza citrinella*	8	BOCC Red List, NERC

Appendix D Bat Survey Results

Table A1. May Transect Survey Results

MAY TRANSECT			**Weather:** Wind 2 South (Light Breeze), Rain 0 (None), dry and 0 to 20% cloud cover: 17 °C at 20:40 / 16 °C at 23:05. **Sunset:**20:55 **Surveyor:** MP
Date: 22/5/17			**Survey Start:** 20:40 **Survey End:** 23:05
Ref	**Time**	**Species[6] & number of passes (if >1 pass)**	**Notes:** including numbers of bats where multiple bats present
1	21:33	PIPI, 2 passes	**Possible emergence from tree T3**
2	21:37	PIPI	Brief pass
3	21:50	PIPI, 2 passes	Foraging near oak tree
4	21:51	PIPI, 2 passes	Foraging near to oak
5	22:01	PIPI + PIPY, 3 passes	Two bats between plantations foraging along track
6	22:04	PIPI	Passing
7	22:07	PIPY, 3 passes	Foraging along hedge
8	22:34	PIPI	Passing S to N
9	22:36	PIPI	Pass at end of hedge
10	22:43	PIPI	Pass at end of hedge
11	22:54	PIPI	Pass unseen

Table A2. May Emergence Survey Results

MAY EMERGENCE T3, T7			**Weather:** Wind 2 South (Light Breeze), Rain 0 (None), dry and 0 to 20% cloud cover: 17 °C at 20:40 / 16 °C at 23:05. **Sunset:**20:55 **Surveyor:** RT, KD
Date: 22/5/17			**Survey Start:** 20:40 **Survey End:** 22:25
Ref	**Time**	**Species & number of passes (if >1 pass)**	**Notes:** including numbers of bats where multiple bats present
TN7	21:22	PIPI	Pass along hedge N to S
TN7	21:29	PIPI	Pass along hedge N to S
TN7	21:31	PIPI, 2 passes	Foraging along hedge
TN7	21:48	PIPI	Foraging along hedge
TN7	21:49	PIPI	Foraging along hedge
TN7	22:07	PIPI	Foraging along hedge
TN7	22:15	PIPI	Foraging along hedge
TN7	22:24	PIPI, 3 passes	Foraging along hedge
TN3	21:33	PIPI	**Possible emergence from tree T3**
TN3	21:37	PIPI	Brief pass E to W
TN3	21:41	PIPI	Brief pass E to W
TN3	21:45	PIPI	Brief pass
TN3	21:58	PIPI	Brief pass
TN3	22:09	PIPI	Brief pass

[6] Key to species: PIPI (Common pipistrelle) PIPY (Soprano pipistrelle),PLAU (Brown long-eared), MYsp. (Myotis species) NYNO (Noctule) EPSE (Serotine), NYsp. (noctule or Leisler's), BABA (barbastelle).

TN3	22:19	PIPI	Regular foraging up and down hedge
TN3	22:25	PIPI	Pass unseen
TN16	n/a		Potential Roost Feature on ash tree at T16 inspected (bird box) and no signs of bats or nesting birds. No further survey bat undertaken.

Table A3. June Transect Survey Results

June TRANSECT			**Weather:** Wind 1 South (Light Air), Rain 0 (None), dry and 60 to 80% cloud cover: 15 °C at 21:10 / 15 °C at 23:30. **Sunset:**21:25 **Surveyor:** MP, RT
Date: 26/6/17			**Survey Start:** 21:10 **Survey End:** 23:30
Ref	**Time**	**Species & number of passes (if >1 pass)**	**Notes:** including numbers of bats where multiple bats present
1	21:50	PIPY	Brief pass through woods
2	21:54	PIPI	Pass along hedge then flew south
3	21:59	PIPY, 5 passes	Foraging briefly between woods
4	22:00-03	Barn owl	Flew W to E over track into woods then in to oak tree to perch.
5	22:04	PIPI	Faint pass
6	22:08	PIPI	Foraging between woods along track
7	22:13	PIPI	Pass along hedge E to W
8	22:15	PIPI	Pass along hedge E to W
9	22:16	PIPI	Foraging along hedge
10	22:20	PIPI	Foraging field corner by trees near road
11	22:33	PIPI	Faint pass
12	22:40	PIPI	Pass near houses
13	22:47	PIPI	Faint pass

Table A4. July Re-entry Survey Results

JULY RE-ENTRY SURVEY T3, T7			**Weather:** Wind 2 North (Light Breeze), Rain 0 (None), dry and 20 to 40% cloud cover: 12 °C at 03:00 / 13 °C at 05:00. **Sunrise:**04:38 **Surveyor:** RT, MP
Date: 4/7/17			**Survey Start:** 03:00 **Survey End:** 05:00
Ref	**Time**	**Species & number of passes (if >1 pass)**	**Notes:** including numbers of bats where multiple bats present
TN7	03:08	PIPI	Pass unseen along hedge
TN7	03:15	PIPI	Pass unseen along hedge
TN7	03:19	PIPI, 5 passes	2 bats briefly foraging
TN7	03:24	PIPI	Passing N to S
TN7	03:33	PIPI	Passing N to S
TN7	03:40	PIPI	Passing S to N
TN7	03:48	PIPY	Passing N to S
TN7	03:54	PIPI	Passing N to S
TN3	03:20	PIPI	Pass unseen along hedge
TN3	03:25	PIPI	Pass unseen along hedge
TN3	03:40	PIPI	Pass unseen along hedge

TN3	03:44	PIPI	Briefly foraging
TN3	03:50	PIPI	Pass unseen along hedge
TN3	03:55	PIPI	Briefly foraging
TN3	04:00	PIPI	Pass E to W
TN3	04:01	PIPI	Pass E to W
TN3	04:03	PIPI	Pass E to W
TN3	04:05	PIPI	**Circling around hedge for a minute then re-entry into Tree T3 (unseen exact location) – Confirmed Roost**

Table A5. August Transect Survey Results

August TRANSECT			**Weather:** Wind 2 (Light Breeze), Rain 0 (None), dry and 40% reducing to 0% cloud cover: 18 °C at 20:00 / 14 °C at 22:05. **Sunset:**20:05 **Surveyor:** MP, RT
Date: 24/8/17			**Survey Start:** 20:00 **Survey End:** 22:05
Ref	**Time**	**Species & number of passes (if >1 pass)**	**Notes:** including numbers of bats where multiple bats present
	20:25	Barn owl	Flew over field off site to west of site from south to north
1	20:35	PIPI, 2 passes	Likely emergence from houses to the north off site
2	20:55	PIPI, 2 passes	Foraging
3	20:56	Barn owl	Flew past, over track to east of woods, over field then south
4	21:00	PIPI	Passing
5	21:02	PIPI	Passing
6	21:06	PIPI	Passing
7	21:07	PIPI	Passing
8	21:13	PIPI, , continuous passes	2 bats foraging around trees
9	21:15	PIPI, 2 passes	Foraging
10	21:16	PIPI	Pass along field boundary
11	21:31-32	PIPI, continuous passes	2 bats foraging along hedge
12	21:34-35	PIPI, PIPY, continuous passes	2 to 3 bats foraging
13	21:40	PIPI	Passing
14	21:51	PIPI	Passing

Table A6. September Transect Survey Results

September TRANSECT			**Weather:** Wind 2 to 1(Light Breeze), Rain 0 (None), dry and 100% reducing to 20% cloud cover: 12 °C at 19:10 / 11 °C at 21:20. **Sunset:**19:12 **Surveyor:** MP
Date: 15/9/17			**Survey Start:** 19:10 **Survey End:** 21:20
Ref	**Time**	**Species & number of passes (if >1 pass)**	**Notes:** including numbers of bats where multiple bats present
1	19:46	PIPI	**Emergence from tree T3 and pass end of hedge**
2	19:59	PIPI, 2 passes	Pass end of hedge
3	20:05	PIPI	Foraging in woods
4	20:07	PIPI, 3 passes	Foraging in woods
5	20:10	PIPI, 5 passes	Faint passes in woods to north and south of track
6	20:15	PIPI, continuous	2 or 3 bats foraging
7	20:48	PIPI, 2 passes	Passing W to E

Table A7. September Emergence Survey Results

September Emergence			**Weather:** Wind 2 to 1(Light Breeze), Rain 0 (None), dry and 100% reducing to 20% cloud cover: 12 °C at 19:00 / 11 °C at 20:45. **Sunset:**19:12 **Surveyor:** RT, KD
Date: 15/9/17			**Survey Start:** 19:00 **Survey End:** 20:45
Ref	**Time**	**Species & number of passes (if >1 pass)**	**Notes:** including numbers of bats where multiple bats present
TN7			**No bats**
TN3	19:46	PIPI	**Emergence from tree**
TN3	19:59	PIPI	Pass along hedge from W to E
TN3	20:22	PIPI	Pass along hedge unseen
TN3	20:44	PIPI	Pass along hedge unseen

Static Detector Results

Static 1 – TF8181607095 (in plantation on a pine tree, 2m above the ground)
Static 2 – TF8167607368 (on mature oak tree in hedge 1.5m above the ground)

Table A8 – Static Detector Results

			Number of passes per hour per species (one pass = a 2 second recording (with multiple pulses) on an Anabat Express detector)									
Date 2017	**Location**	**Nights (hours per night)**	PIPI	PIPY	PLAU	NYNO	NYSp.	MYSp.	EPSE	BABA	Total	**BAI**
Spring	**1**	**6 (7hrs)**	372.0	12.0	1.0	2.0	1.0	1.0		1.0	390.0	**9.28**
Spring	**2**	**6 (7hrs)**	1395.0	22.0		1.0					1418.0	**33.76**
Summer	**1**	**6 (10hrs)**	260.0	11.0	1.0	7.0	11.0	2.0			292.0	**4.87**
Summer	**2**	**6 (10hrs)**	272.0	38.0	1.0	2.0	4.0	1.0			318.0	**5.3**
Autumn	**1**	**5 (11.5hrs)**	317.0	5.0				6.0	1.0		329.0	**5.72**
Autumn	**2**	**5 (11.5hrs)**	34.0	10.0	2.0			1.0	2.0		49.0	**0.85**

B.A.I = **Bat Activity Index**. Mean number of passes (all species combined) per hour (**hr**). Note varying numbers of hours per night (sunset to sunrise) at different times of the year, rounded to nearest 0.25hrs. PIPI (Common pipistrelle) PIPY (Soprano pipistrelle) PLAU (Brown long-eared) MYsp. (*Myotis* species) NYNO (Noctule), EPSE (Serotine) EPSE (Serotine) NYsp. (noctule or Leisler's), BABA (barbastelle).

Chart 1 – Bat Activity Index per Species

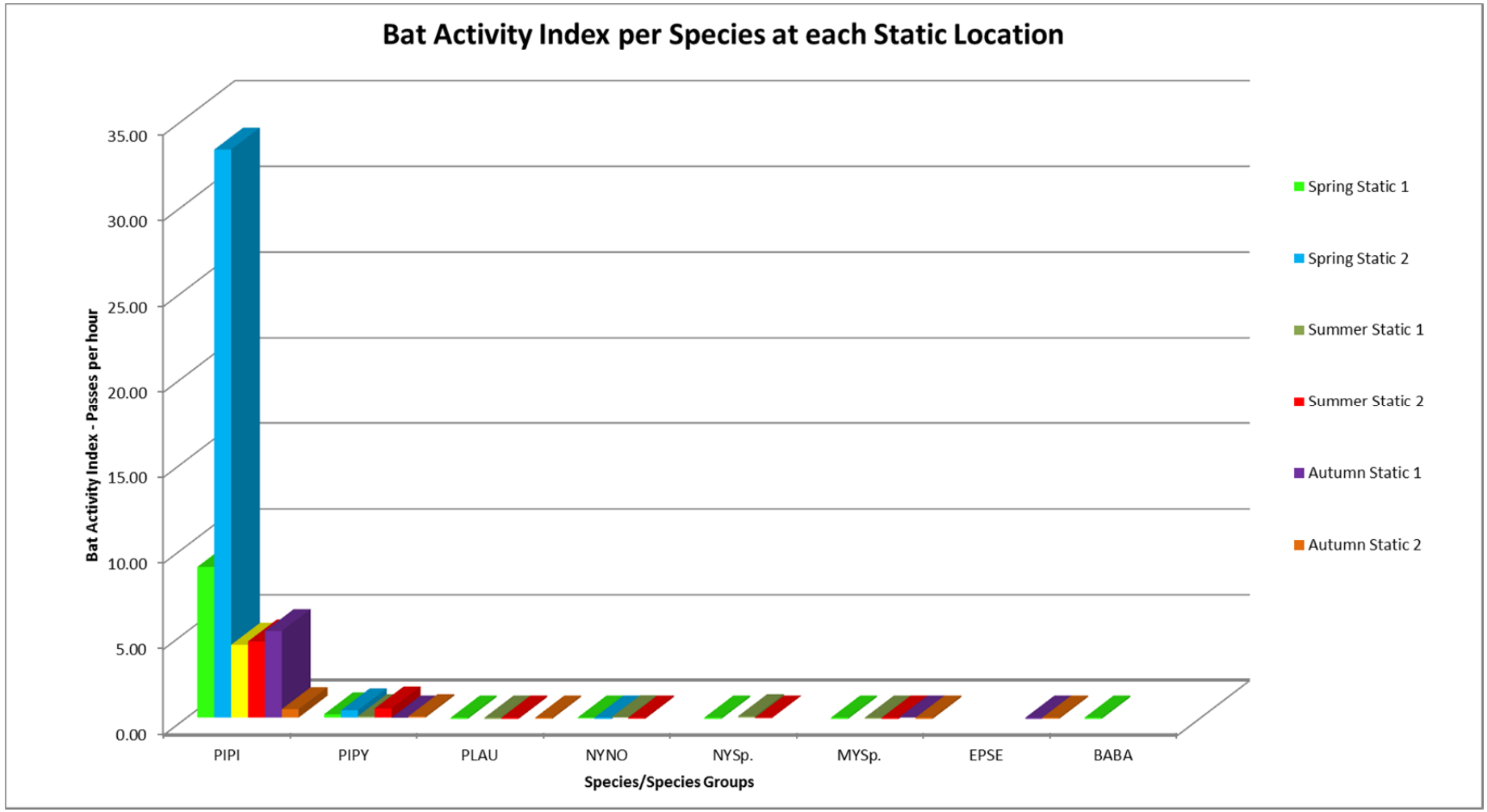
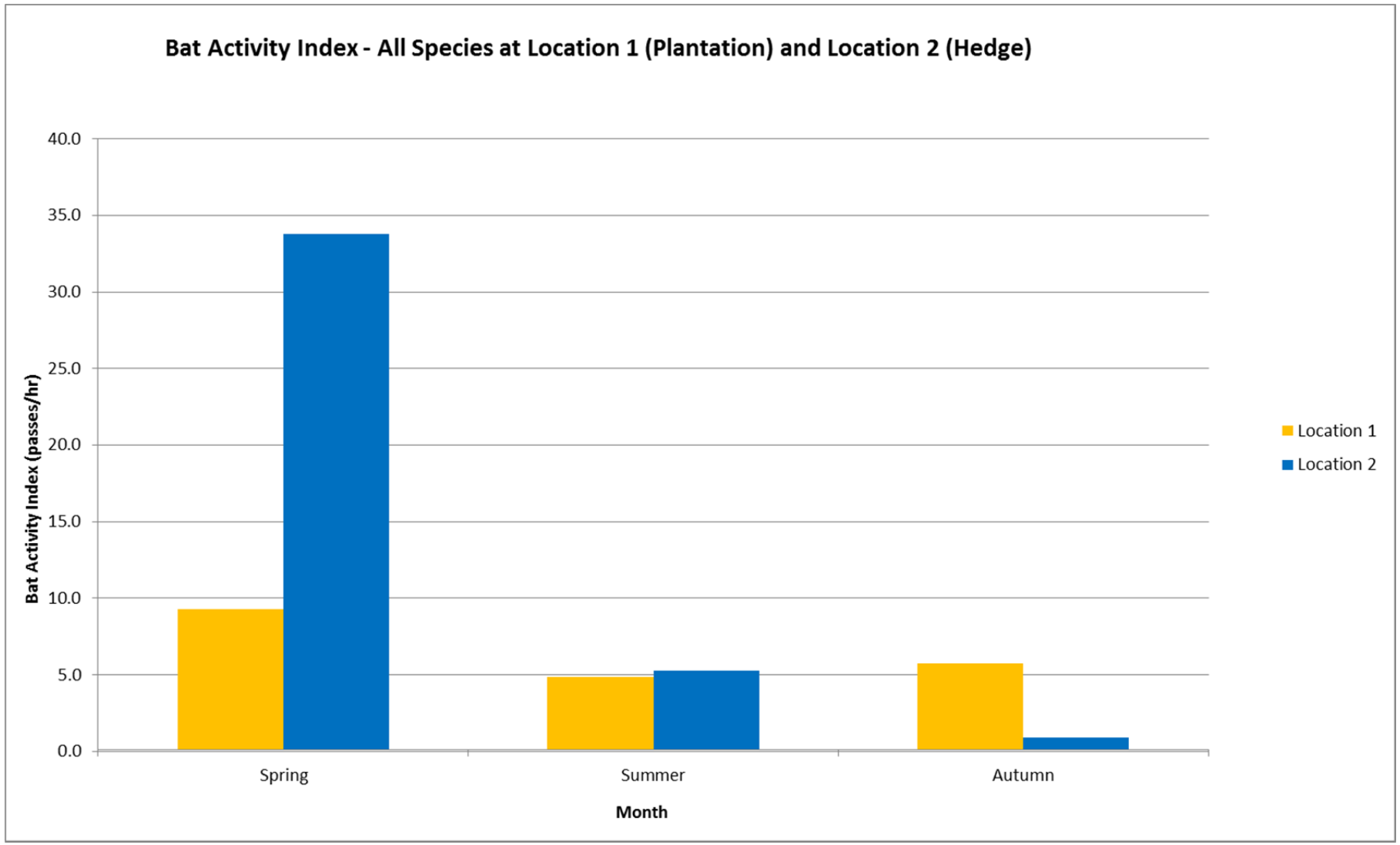


Chart 2 – Bat Activity Index - All species



Appendix E Hedgerow Survey Results

Ref (see Figure 10)	Grid reference (centre)	Dimensions, planting structure, connections	Adjacent land-use	Average woody species in 30 m samples	PRoW adjacent	>30yrs old	Qualifying features and notable/ protected plants/ animals	Woodland Ground Flora	Species-rich	Hedgerow regulations assessment
TN1	TF81596 07364	180m length 8m high x 5m wide Single line No connections	Arable	Ave. 5.5 species, hornbeam, field maple, common hawthorn, hazel, ash, wild cherry, blackthorn, pedunculate oak and elder	N	Y	Gaps <10% <1 standard tree per 50m section A common pipistrelle bat roost (a Schedule 5 animal)	None	Yes	**Important**
TN5	TF81670 07110	65m length 6m high x 4m wide Single line One hedge connection	Arable	5 species, field maple, hornbean, hazel, common hawthorn and pedunculate oak	N	Y	Gaps <10%	None	Yes	Not important
TN12	TF81920 07072	140m length 3m high x 3m wide Single line One hedge connection, two woodland connections	Arable	Ave. 2 species – field maple, hazel, common hawthorn and blackthorn	N	Y	Gaps <10% Connections score 4 or above	None	No	Not important
TN14	TF82008 07258	250m length 3m high x 3m wide Single line One woodland connection	Arable to west and housing/road to east	Ave 1.33 species – common hawthorn, elder	N	Y	Gaps <10%	None	No	Not important

Appendix 1

All hedges surveyed on 22nd May in dry, fine weather.

Appendix F Photographs

For the full set of site photos see the PEA report (AECOM, 2017)

Photo 1 – Pendunculate oak at TN3 in hedge TN1 – a confirmed common pipistrelle day roost.

Photo 2 - Hedge TN1

Photo 3 - Hedge TN5

Photo 4 - Hedge TN12

Photo 5 - Hedge TN14

Appendix G Artificial Lighting Guidance

Recommendations are provided below to help minimise the impact of artificial lighting on Bats (based on BCT, 2014).

Do not provide excessive lighting, use only the minimum amount of light needed for the task.

Do not directly illuminate bat roosts or important areas for nesting birds.

Avoid installing lighting in ecologically sensitive areas such as: near ponds, lakes, rivers, areas of high conservation value; sites supporting particularly light-sensitive species of conservation significance (e.g. glow worms, rare moths, slow-flying bats) and habitat used by protected species.

Avoid using reflective surfaces under lights.

Consider the following:

- employing a competent lighting designer who will apply the principals of providing the right light, in the right place, at the right time and controlled by the right system.
- minimise the spread of light to at, or near horizontal and ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required.
- consider the height of lighting columns. It should be noted that a lower mounting height is not always better. A lower mounting height can create more light spill or require more columns. Column height should be carefully considered to balance task and mitigation measures.
- consider no lighting solutions where possible such as white lining, good signage and LED cats eyes. These options can also be effective. For example, light only high-risk stretches of roads, such as crossings and junctions, allowing headlights to provide any necessary illumination at other times.
- use temporary close-boarded fencing until vegetation matures, to shield sensitive areas from lighting.
- limit the times that lights are on to provide some dark periods. The task being lit often varies, for example roads are less used after 23.00hrs and car parks are empty. A lighting designer can vary the lighting levels as the use of the area changes reducing lighting levels or perhaps even switching installations off after certain times. This use of adaptive lighting can tailor the installation to suit human health and safety as well as wildlife needs.

Technological specifications

Research from the Netherlands has shown that spectral composition of lighting determines the potential impact on biodiversity. To reduce potential impacts:

- Use narrow spectrum light sources to lower the range of species affected by lighting.
- Use light sources that emit minimal ultra-violet light
- Lights should peak higher than 550 nm
- Avoid white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are required in order to manage the blue short wave length content they should be of a warm / neutral colour temperature <4,200 kelvin.

Note that recently research from Exeter University suggests that some white LED lighting is actually blue with a white phosphor coating and should be avoided.

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

Land West of Brandon Road, Swaffham

Landscape and Visual Impact Assessment: Baseline

on behalf of

Abel Homes

Planning | September 2017

thelandscapepartnership
planning and designing environments for life

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Contact:

Simon Neesam
Technical Director

The Landscape Partnership
The Granary, Sun Wharf
Deben Road
Woodbridge
Suffolk, IP12 1AZ

www.thelandscapepartnership.com

The Landscape Partnership Ltd is a practice of Chartered Landscape Architects, Chartered Ecologists and Chartered Environmentalists, registered with the Landscape Institute and a member of the Institute of Environmental Management & Assessment and the Arboricultural Association.

The Landscape Partnership
Registered office
Greenwood House
15a St Cuthberts Street
Bedford
MK40 3JG

Registered in England No. 2709001

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Contents

Appendices

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

1 Introduction

1.1 Background to the project

1.1.1 The Landscape Partnership has been commissioned by Abel Homes to undertake a Landscape and Visual Impact Assessment (LVIA) in support of a possible outline planning application for a mixed-use development at land west of Brandon Road, Swaffham. The site is being promoted for allocation in the emerging Local Plan.

1.1.2 The site is centred on grid reference TF818079. The site is currently in agricultural use and lies at the southern edge of the settlement. The site boundary includes a single, large, broadly rectangular field west of Brandon Road, which comprises the main body of the site, and parts of two further fields to the west. Part of a small rectangular woodland, lying at the southern edge of the site, is also included within the site boundary.

1.1.3 The total area of the site is 13.7ha.

1.1.4 The proposed development is likely to include: a medical centre, a 64-bed care home, 2 storeys high: a 4000sq.ft convenience store, retirement housing and in addition, 11.3ha of residential development, which could be in the order of 160 dwellings.

1.2 The planning application

1.2.1 The LVIA will form part of a suite of documents submitted in support of the forthcoming planning application, and should be read in conjunction with the following supporting documents that will be included with the submission:

- Design and Access Statement
- Planning Statement
- Ecology reports
- Statement of Community Involvement
- Transport Statement

1.3 Objectives of this report

1.3.1 The LVIA assesses the likely landscape and visual effects of the proposed development. This process includes consideration of the effects of the proposals upon the landscape of the site itself, the local and wider landscape character, and any changes to views. The LVIA provides a description of the existing landscape and built features within the site and its immediate vicinity. It considers the relationship of these features to the local and wider landscape characteristics; the contribution that these features have in views; and the presence of statutory or local landscape-related designations. In defining 'landscape', reference is made to the adopted definition agreed by the European Landscape Convention (Florence: Council

of Europe 2000), which states that the landscape is *'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'*.

1.3.2 The LVIA will also assess:

- any loss or damage to landscape and built features, and the perceived change to the character of the landscape, likely to result from the proposed development;
- the capacity of the landscape to accommodate the proposed type of development;
- the extent to which the development would be visible; and
- how views would change from a variety of visual receptors

1.3.3 The preparation of the LVIA has been split into two phases. Phase 1 is the compilation of baseline conditions, which will be used to inform the screening and scoping process, and phase 2 will be the assessment of the likely effects of the proposed development on landscape and visual receptors. This report relays the findings of Phase 1: Compilation of the baseline.

2 Methodology and assumptions

2.1 Methodology

2.1.1 In order to understand how landscape features, landscape character and views would be affected, the LVIA will use an objective approach based on the Guidelines for Landscape and Visual Impact Assessment (GLVIA)[1]. The detailed application of these Guidelines, the criteria and categories used, and the assumptions and limitations applied are set out at Appendix 1: Methodology. The assessment approach will determine the significance of the changes to the landscape and views, should the proposed development proceed. This will be achieved by first understanding the relative sensitivity of the character of the landscape and the view and then combining this with the magnitude or extent of change that would result from the proposed development. Changes can be experienced as an adverse, beneficial or neutral influence. Other considerations will also be taken into account such as seasonal variation, direct or indirect effects and comparison of effects in the first year following completion and after a period of 10 years once any planting has established. The GLVIA advises that the level of detail provided should be to a reasonable level and sufficient to determine the likely significant effects. This should be *'appropriate and proportional to the scale and type of development and the type and significance of the landscape and visual effects likely to occur'*.

2.2 Assumptions and limitations

2.2.1 The following assumptions have been made in respect of the compilation of the baseline conditions:

[1] Guidelines for Landscape and Visual Impact Assessment, The Landscape Institute and Institute of Environmental Management and Assessment, 3rd Edition, April 2013

- The assessment Baseline Year is 2017.
- Existing vegetation will continue to grow at rates typical of the location, species and maturity of the vegetation.
- The receptor for a view from a public right of way, public open space and within a residential property is represented as an adult standing with an eye height of 1.6m.
- Visual effects are assessed on the basis of good visibility. Visual effects can be expected to vary, e.g. poor visibility at times of low cloud, rainfall and dusk. At these times a reduction in visual clarity, colour and contrast would be experienced. Reduced visibility would limit the extent of view possible particularly in mid to long distance views.
- Extent of use of public rights of way is based on: known information (e.g. if the right of way forms part of a promoted route at a local or national level), signage, and circumstantial evidence at the time of the survey such as recent disturbance of grass and crops, a clearly defined path, extent of wear, and the number of people/horses using the right of way at the time of the survey. The extent of use of a road is based on the number of vehicles observed using the road at the time of the survey and as could reasonably be expected for the class of road.

2.2.2 In undertaking the assessment, other than the site, private property has not been accessed, as it is generally considered impracticable to seek approval to gain access to residential properties or other buildings to assess the effect on views from each window in a property or adjoining land. Assessment is therefore based on the nearest publicly accessible location, which will usually be a road or public right of way, or on views from within the site looking outwards. Professional judgement is used to extrapolate what the likely views would be from windows, making allowances for changes in height, e.g. from a first-floor window.

3 Landscape context and site features

3.1 Site context

3.1.1 The site is located on the southern edge of Swaffham, a market town within the district of Breckland. The town of Swaffham lies at the northern edge of an area known as the Brecks. The identity of this region is based on a particular land-use history, with ancient heathland once covering huge areas of the Brecks. The underlying chalk geology has produced a low, gently undulating plateau, largely covered with sandy soils of glacial origin. The Brecks is sandwiched between the more fertile, and more wooded, clayland plateau to the north, east and south, and the level drained peat and silt fens to the west.

3.1.2 The Brecks can be characterised as a lowland rural landscape comprising a simple, large scale mosaic of mixed and coniferous plantations, arable agriculture and lowland heathland. The large-scale pine plantations of Thetford Forest, and the use of modern farming technology

have transformed much of the Brecks, and two thirds of the area is now used for vegetable and cereal production.

3.1.3 Swaffham is a historic market town with a large, characterful marketplace at its centre. The earlier prosperity of the town is evident in a series of fine buildings grouped around the marketplace in the town centre, many of them dating from the 18th century, and in the impressive parish church.

3.1.4 Swaffham is located on a plateau, and this landform is typical of the wider Breckland landscape. There are slight undulations across the area, and the elevation within the town ranges from 60-75m AOD. The town is notable for its lack of rivers, and the town used to be served by a series of wells as recently as the 19th century. The land to the south of the town tends slightly downwards. Certain undulations within the plateau can be perceived; Watton Road for example sits within a gentle fold in the landscape, and is thus lower relative to the town.

3.1.5 A number of routes converge on the town. The primary routes in the vicinity of the town are Brandon Road (A1065), which follows a line southward to Brandon; Castle Acre Road (A1065), which is aligned northwards to Castle Acre, and the A47, which by-passes the town to the north. A number of lesser roads also converge on the town. These include Beachamwell Road and Cley Road which run south-westwards from the settlement, and Watton Road which runs south-eastward. See Figure 1: Location plan.

3.1.6 The site is located at the southern edge of the town. To the north, the site adjoins 20th century suburban development at Sutton Road, Ranworth Close, Ormesby Drive, Surlingham Drive and Hoveton Drive. The housing comprises a mix of single, one and half, and two storey dwellings with private gardens.

3.1.7 The A1065 Brandon Road follows the eastern edge of the site. A group of sycamores is present on highway land adjoining the south-eastern edge of the site. The Redlands Park development can be found on the eastern side of the road. Redlands Park comprises a large housing development on the site of a former factory. The housing is typically two storeys high and has a suburban character. Houses within the Redlands Park development are set back from Brandon Road by some distance, with an area of amenity green space between the buildings and the road. There are around 15 properties, fronting onto the open space, which overlook the site.

3.1.8 Agricultural land currently in cereal production extends southwards from the site. This area of countryside is sparsely settled; however, Brandon Road forms a prominent north-south route through the area. The field pattern comprises large, geometric enclosures, separated by hedges and tree lines. Further to the south there is a series of woodland blocks. These include Stags Heath which is an area of mixed woodland on former heathland, and extensive

areas of coniferous woodland within the Swaffham Heath plantation, which is owned by the Forestry Commission. Beyond this is an area of sparsely settled countryside comprising a mix of plantation woodland and farmland.

3.1.9 To the west is an area of arable farmland which is generally used for cereal cultivation. Again, the field pattern is made up of large geometric fields separated by boundary hedgerows, tree lines and woodland blocks. Cley Road runs south-westwards from Swaffham towards Cockley Clay, passing through the countryside to the west of the proposed site. To the west of Cley Road is Swaffham Golf Club, Snails Pit Farm, and further arable farmland.

3.1.10 The site is located at the southern edge of the town and is adjacent to the A1065 Brandon Road. The A1065 is part of the primary route networks and carries traffic north-south through the centre of Swaffham. The A1065 Brandon Road represents the principle route into the town from the south, and as such the site is located at an important gateway into the town. The town of Swaffham forms a nucleated settlement, with the town originally developing around the historic marketplace. The urban area expanded significantly to the south during the twentieth century with the development of private housing estates, a leisure centre and schools. The settlement edge is clearly defined, with housing estates adjoining the surrounding farmland. The urban edge tends to be defined by the rear gardens of residential properties, with little in the way of screen planting. Built form is prominent in views from the surrounding area, creating a harsh urban edge. There is a strong distinction between the town, which forms a nucleated settlement, and the sparsely settled countryside beyond.

3.1.11 Whilst new development is often poorly integrated into the surrounding landscape, with little screen planting, it is noted that views towards the town from the south are somewhat restricted. The plateau landform means that existing dense vegetation and buildings form effective screening elements. Blocks of woodland and an avenue of mature trees at Cherry Tree Farm prevent longer-distance views from the Brandon Road towards the town. To the north of this, views towards the settlement from the Brandon Road are partially filtered by the hedgerow adjoining the highway. From this section of road the urban edge is already apparent with development at Redlands Park, on the eastern side of Brandon Road.

3.1.12 The southern gateway to the town is marked by a roundabout which provides access to the Redlands Park housing estate from Brandon Road. The residential development extends along the eastern side of Brandon Road and gives the road a partially urbanised character.

3.1.13 The Peddars Way is a promoted long-distance footpath which starts in the Brecks, to the east of Thetford, and follows a line NNW towards Hunstanton, on the north Norfolk coast. The path follows the course of a roman road. The Peddars Way runs through open countryside to the east of Swaffham, and is approximately 3.1km from the site at its nearest point.

3.1.14 There is no public access onto the application site. However, the following public rights of way can be found in the vicinity of the site:

- Public Footpath No. 61 from Watton Road to Brandon Road. This path commences from a point close to Carol House and continues westwards to Brandon Road, just beyond Bride's Pit.
- Public Footpath No. 62 from Watton Road to Brandon Road. This path commences from the junction of Dulgate Lane and Watton Road immediately to the east of the site, westwards to Brandon Road, between the Swans Nest and Redlands Park developments.
- Restricted Byway No. 48 from Cockley Cley Road to Brandon Road. This road starts from the Cockley Cley Road and follows in a straight line eastwards to the Brandon Road, to the south of Stags Heath woodland.
- Restricted Byway No. 49 from Brandon Road to Watton Road. This road starts from the Brandon Road, immediately opposite the end of Restricted Byway No. 48, and follows in a straight line eastwards to Watton Road.

3.2 Site features

3.2.1 The site is almost square in shape and covers an area of agricultural land at the southern edge of the settlement. The main part of the site represents a single, large, broadly rectangular field to the west of Brandon Road. The site boundary extends slightly further west up to the edge of the existing adjacent development to take in a part of two adjoining fields.

3.2.2 The site is located on a plateau and the site and its immediate surroundings are almost flat, with no significant topographical features.

3.2.3 The site is currently in agricultural use and the main field within the site is used for cereal cultivation. The north-western corner of the site comprises a small parcel of land which is part of a larger field. This portion of the site is not actively cultivated and currently has a tall grassland cover. The south-western part of the site forms a part of a large field which is actively used for cereal cultivation.

3.2.4 Vegetation cover is limited to a block of woodland at the southern edge of the site, boundary hedgerows around the perimeter of the site, and short lengths of hedgerow/hedgerow trees within the interior of the site. The woodland plantation is rectangular in form and dates from the early 20th century. The woodland is indented into the main field and adjoins the southern site boundary. It appears that the woodland was planted around two historic ponds, and comprises Scots pine around the perimeter, with broadleaved trees in the centre, many trees within the woodland are mature trees and have reached 15-20m tall.

3.2.5 There are no built structures or areas of hardstanding on the site.

3.2.6 The northern site boundary adjoins the rear gardens of residential properties at Sutton Road, Ranworth Close, Ormesby Drive, Surlingham Drive and Hoveton Drive. A variety of boundary features are present including hedgerows, close board fences, and post and rail fences, which exert a domestic influence. The eastern boundary hedgerow adjoining Brandon Road is approximately 2m tall and is dense and bushy. The southern boundary is marked by a field hedgerow. The condition of the southern boundary hedgerow is declining and it has developed gaps. The western site boundary runs through existing fields and is not marked by any physical feature. The boundary between the main field and the fields to the west would originally have been marked by a hedge; however, much of the woody vegetation is now lost. The boundary between the two fields in the western part of the site is marked by a mature hedge including a line of mature hedgerow trees.

3.2.7 There is no public access on to the site. Rights of way in the vicinity of the application site are considered at Section 3.1 above.

3.2.8 The site is currently accessed via a farm track along the southern site boundary that extends westwards from Brandon Road. There are no tracks within the site itself.

3.2.9 Details of site features and their sensitivity to change are set out in Table 3.1 below.

Table 3.1: Site features

Site Feature	Description	Landscape Sensitivity: Value	Landscape Sensitivity: Susceptibility to Change	Overall Landscape Sensitivity
Landform	• Part of wider plateau falling very gently from north to south. • The site and its immediate surroundings are almost flat. • No obvious topographical features in the vicinity of the site; absence of valley landforms.	Medium	Low	Low
Land Use	• The greater portion of the site is currently in agricultural use for cereal cultivation. • North-western corner of the site is uncultivated and is covered by tall grassland. • The site also encompasses a portion of a small area of plantation woodland at the southern edge of the site.	Medium	High	Medium
Vegetation	• Little woody vegetation within the main portion of the site. • Small area of grassland in north-western corner of the site.	High	Medium	Medium

Site Feature	Description	Landscape Sensitivity: Value	Landscape Sensitivity: Susceptibility to Change	Overall Landscape Sensitivity
	• Some remnant hedgerows and hedgerow trees marking field boundaries within the interior of the site. • Small area of plantation woodland adjacent to the southern site boundary.			
Historic Assets	• Historic field pattern remains intact, through condition of field boundaries has declined	Medium	Medium	Medium
Public Access	• There is no public access onto or across the site.	NA	NA	NA

4 Landscape-related designations and public rights of way

4.1 Landscape-related designations

4.1.1 A desktop study has revealed that there are no landscape-related designations covering the site. Those that are in its vicinity, such that they may be affected by development at the site, are described below. See also Figure 3: Landscape-related designations.

Area of Outstanding Natural Beauty

4.1.2 There are no Areas of Outstanding Natural Beauty within this area.

Conservation Area

4.1.3 Conservation Areas are defined by the 1990 Planning Act as *"areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance"*. Published Conservation Area Appraisals provide an overview of the existing character that should be preserved, as well as possible areas for future enhancement.

4.1.4 The centre of Swaffham is covered by a Conservation Area designation. The Conservation Area is approximately 1.1km to the north of the site at its nearest point, and is separated from the site by extensive areas of C20 development. There is no inter-visibility between the Conservation Area and the site.

Ancient Woodland

4.1.5 Ancient Woodland is formally defined by Natural England and comprises woodland that has existed continuously since 1600. Such woodland is likely to have developed naturally, since before that date the planting of woodlands was not commonplace.

4.1.6 There are no Ancient Woodlands within this area.

Scheduled Monuments

4.1.7 The following Scheduled Monuments can be found within the wider vicinity of the site:

- Bowl barrow 810m SSE of Forestry Lodge (National Monument No. 35073). The monument includes the remains of a round barrow and is located approximately 1.6km south-east of the site.
- Bowl barrow 840m SSE of Forestry Lodge (National Monument No. 35072), located approximately 1.6km south-east of the site

4.1.8 The Scheduled Monuments are located within woodland areas to the south of the site. There is no inter-visibility between the scheduled monuments and the site and no potential effect on setting.

Listed Buildings

4.1.9 Buildings or structures may be listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 and included on the Statutory List of Buildings of Special Architectural or Historic Interest, as maintained in England by Historic England.

4.1.10 There are no Listed Buildings on, or near to, the site. The nearest Listed Building is Carol House, a Grade II listed farmhouse, dated 1730 at Watton Road. Carol House lies approximately 1.1km to the east of the site. Mature hedges and hedgerow trees, together with two roads and development within Redlands, limit views from the property towards the site.

4.1.11 The historic core of Swaffham, contains numerous Listed Buildings, with many of the properties fronting onto Lynn Street, London Street and Station Street. The marketplace lies at the intersection of these streets and most of the Listed Buildings are clustered around the marketplace and its approach roads. There are further Listed Buildings which lie to the east of the main historic thoroughfares, including The Church of St Peter and St Paul (Grade I), the Manor House (Grade II*), Holmwood House (Grade II), Gradys Hotel (Grade II), Crown Cottage (Grade II), Wood Farm (Grade II) and Manor Farm (Grade II). The nearest Listed Building within the historic core of Swaffham is the boundary wall south of Number 62 (Holly House) which lies c.1.1km north of the site. Listed Buildings within Swaffham are separated from the site by extensive areas of C20 development, and there is no inter-visibility with the site.

Registered Parks and Gardens

4.1.12 There are no parks or gardens included on Historic England's Register of Parks and Gardens of Special Historic Interest within this area.

Sites of Special Scientific Interest (SSSI)

4.1.13 Sites of Special Scientific Interest (SSSI) are designed for their ecological, geological or geo-morphological interest. The Breckland Forest SSSI lies to the south of the site, and is approximately 240m from the site at its nearest point. This is an area of coniferous woodland

which has been designated for its ecological interest. The ecological effects of the proposed development, and its potential effects on the SSSI, lie outside the scope of this report.

4.2 Public Rights of Way

4.2.1 Public Rights of Way are designated routes accessible year-round to the public. These include public footpaths, bridleways, restricted byways, and byways open to all traffic (BOATs).

4.2.2 There are no public rights of way within the site. Those in its vicinity, including promoted long-distance walks, are described at Section 3.1 above.

Table 4.1: Landscape-related designations

Designation	Importance	Distance (closest point)
Conservation Area	District	c.1.1km (Swaffham)
Scheduled Monument	National	c.1.6km (Bowl Barrow)
Listed Building	National	c.1.1km (Carol House)
Promoted long distance walk	National	c.3.1km (Peddars Way)
Public rights of way	Local	10m (Footpath No. 62 Watton Road to Brandon Road) 160m (Footpath No. 61 Watton Road to Brandon Road) 680m (Restricted Byway No. 48 Cley Road to Brandon Road) 680m (Restricted Byway No. 49 Brandon Road to Watton Road)

5 Landscape character

5.1 Published landscape character assessments

5.1.1 Landscape character assessments enable landscapes to be described and understood by mapping natural, physical and cultural features in order to define different landscapes and demonstrate what makes them special. Landscape character types share similar characteristics, such as underlying geology, soil type, topography and landform, the pattern and type of land/field enclosure, historic land use, the pattern of settlements and types of building that these comprise, tree and woodland cover and the general visual experience of the area. Landscape character areas are specific geographic areas that exhibit a particular landscape character type.

5.1.2 It is important to note that landscape character assessments can be undertaken at a range of scales. It should also be noted that boundaries are only indicative of the change between areas and therefore when working at a site scale, especially close to boundaries between character types or character areas, users should carefully identify which landscape the land parcel belongs to, based on its characteristics. In addition, it is important to note that while drawn with a line on a map, areas close to boundaries often may be better thought of as an area of transition and may display some of the characteristics and sensitivities of both character areas.

5.1.3 Effects on landscape character can be both direct, i.e. on the character area/landscape type that the site is located within, and indirect, i.e. changes to characteristics or perceptions of character that occur beyond the boundary of a character area/landscape type. In addition, effects on landscape character may be positive or negative, i.e. strengthening and enhancing the characteristic patterns and features, or eroding and losing the patterns and features that contribute to landscape character.

5.1.4 There are several published landscape character assessments applicable to the site. These are the National Character Area (NCA) profiles, the Norfolk and Suffolk Brecks Landscape Character Assessment (2013) and the Landscape Character Assessment of Breckland District (2007). These are considered in more detail below.

5.2 National level – National Character Area 85: Brecks National Character Area

5.2.1 In the mid-1990s, English Nature and the Countryside Commission jointly produced The Character Map of England – a single map that identified and described 159 Joint Character Areas (JCA) covering the whole of England. (The Landscape Partnership undertook the mapping and character assessment work on behalf of Natural England for the east of England). Each distinct area was defined following consideration of its landscape, biodiversity, geodiversity, and cultural and economic activity. The boundaries of the areas followed natural rather than administrative boundaries. The various volumes of the Map were published between 1998 and 2000.

5.2.2 More recently, Natural England has undertaken a review of the JCAs in order to fulfil, in part, responsibilities set out in the Natural Environment White Paper 2011, Biodiversity 2020, and the European Landscape Convention 2007, creating National Character Area (NCA) profiles that are based on the original JCA profiles.

5.2.3 The site is within National Character Area (NCA) 85: The Brecks. The Brecks lies at the heart of East Anglia, occupying much of south-western Norfolk and north-western Suffolk, together with a small part of north-eastern Cambridgeshire. The profile states that: *"The area has a long-established identity, a very particular land-use history and a richly distinctive wildlife, which sets it apart from all surrounding landscapes. Its underlying chalk geology has produced a low, gently undulating plateau, largely covered with sandy soils of glacial origin."*

5.2.4 The Brecks is one of the warmest and driest parts of the UK and this aspect, combined with its freely draining soils, led to the development of dry heath and grassland communities, which originally covered huge areas of the Brecks. Over the last hundred years, the large-scale conifer plantations of Thetford Forest and the use of modern farming technology have transformed much of the area. Woodlands cover 28% of the total area, the majority of which is Forestry Commission plantation. Around 68% of the NCA is farmed, and cereal production accounts for up to 30% of the total farmed area. The area is also used for vegetable crops and for stock rearing, especially pigs and poultry. The area is important for stone curlews and nightjars, and 39% of the area is covered by international nature conservation designations (SPA and SAC).

5.2.5 Relevant key characteristics of NCA 85 are:

- A largely open, gently undulating landscape with a low-lying, dry plateau that rises to the north. Subtle long slopes lead to alluvial flats containing shallow, meandering wooded river valleys.
- The chalk solid geology lies close to the surface and is covered by thin deposits of sand and flint. The effects of repeated freeze and thaw in the tundra-like climate of the last ice age have produced intricate ground patterns, with patches of calcium-rich soils interspersed with acidic conditions.
- Vast commercial conifer plantations form a forest landscape, unique in lowland England. The regular geometric shape and form and the repeated occurrence of plantations and shelterbelts unify the land cover pattern, forming wooded horizons and framing views into adjacent landscapes.
- Predominantly agricultural land use focused on arable production, with planned courtyard farmsteads and large, regular 18th and 19th century enclosure fields often clearly defined by Scots pine and beech shelterbelts or neat hawthorn hedges, indicative of large estate enclosure. The regular field layouts combine with long, straight, undulating roads to create a geometric landscape character.
- Outdoor pigs and intensive indoor and outdoor poultry-rearing units are also characteristic.
- Free-draining geology and soils with naturally low fertility support internationally important lowland heathland and mosaics of lowland acid and calcareous grassland that bring colour and textural variation to the landscape and provide a biodiversity-rich resource.
- A high concentration of important archaeological features, resulting from a long continuity of human settlement, include Neolithic flint mines, medieval churches, priories and rabbit warrens, 18th and 19th century designed parklands and estate

villages, Second World War defence features and 20th century abandoned settlements in the military training area known as the Stanford Training Area (STANTA).

- The settlement pattern is sparse with nucleated villages scattered along the river valleys. Farm buildings and churches have considerable impact, but elsewhere the landscape is very empty. Large military air bases are a feature.
- Traditional knapped flint, clunch (a form of impure chalk) and 'white' brick are characteristic building materials.
- Away from the main A-road transport corridors where traffic is consistently busy including the A11, A1065 and A134, the area remains still and peaceful. On the approach roads to Swaffham, Watton and Thetford, vertical structures, including communications masts and the Swaffham and North Pickenham wind turbines, dominate the landscape.

5.2.6 The character of the site and its surroundings is to some extent typical of the character of the Brecks. In terms of landcover the site is typical of the Brecks as it is used for cereal cultivation. Coniferous plantations, which form a key component of the character of the area, are evident within the wider surroundings. However, the character of the site is influenced by the proximity of the urban edge. The settlement pattern is not typical of the wider character, as the site is located at the edge of a town, and the surroundings feature large areas of C20 residential development. The presence of the A1065 Brandon Road reduces the tranquillity of the area and introduces a source of noise and movement. The buildings within the vicinity of the site do not use characteristic local building materials and have a more generic character.

5.3 Regional Level - Norfolk and Suffolk Brecks Landscape Character Assessment

5.3.1 The Norfolk and Suffolk Brecks Landscape Character Assessment was commissioned in 2013 by the Brecks Partnership and compiled by Sheils Flynn. The study area covers the whole of the Brecks National Character Area (NCA 85).

5.3.2 It is intended to be a stand-alone report that describes the distinctive character of the Brecks and supports the positive management of the area.

5.3.3 The Brecks LCA refers to, and compliments, more detailed landscape character assessments undertaken at a district level. The supporting studies identified 29 different landscape character types within the study area. The Brecks LCA refines these down to nine landscape types, which together describe the landscape character of the Brecks NCA.

5.3.4 The site, and the area to the west of Brandon Road, lies within the *Brecks Arable Heathland Mosiac* landscape character type. The distinctive landscape characteristics of this type are as follows:

- Flat or gently sloping plateaux underlain by chalk, but with free-draining sandy soils.

- Large scale mosaic of lowland heath, mixed farmland, conifer plantations, broadleaf woodland and tree belts.
- Juxtaposition of acid and calcareous soils contributes to distinctive and exceptionally rich biodiversity.
- Belts of contorted Scots pine form a striking silhouette against the fields, defining the Brecks.
- Strongly geometric structure of fields, tree belts, roads and tracks.
- Virtually no villages, but a dispersed pattern of farmsteads, hamlets and estates.
- Wealth of archaeological heritage charting continuity of settlement from Mesolithic times and including Neolithic flint mines, medieval priories and rabbit warrens, 18th century designed parklands and 20th century military defences and training grounds.

5.3.5 Land to the east of Brandon Road falls within the *Rolling Clay Farmland* landscape character type. The distinctive landscape characteristics of this type are as follows:

- Rolling arable farmland underlain by deep boulder clays.
- Large scale, open arable fields on broad ridgetops; scattered mixed woodlands and hedgerow trees provide moderate enclosure on rolling lower slopes.
- Rectilinear field pattern defined by neat hawthorn hedgerows.
- Groups of mature hedgerow oak trees along rural lanes.
- Long, relatively open views, particularly from ridgetops.
- Rural character, with small clustered hamlets and villages linked by a dense network of hedged lanes and tracks.
- Church towers, pylons and wind turbines (at North Pickenham) are local landmarks.

5.4 Local level - Breckland District Landscape Character Assessment 2007

5.4.1 The Landscape Character Assessment of Breckland District was prepared by Land Use Consultants in 2007 on behalf of Breckland District Council.

5.4.2 For the purposes of assessing the effects of the proposal on landscape character, the landscape character areas described in the Breckland District Landscape Character Assessment (LCA) provide the most detailed breakdown of landscape character available. The Breckland District LCA identifies six landscape types within the district. Each of the generic landscape types has a distinct and relatively homogenous character, with similar physical and cultural attributes. The site falls within Landscape Type D: The Brecks - Heathland with Plantation. The landscape types are further sub-divided into component landscape character

areas. These areas each have a distinct and recognisable local identity. The site falls within Character Area D1: Swaffham Heath.

5.4.3 The Brecks – Heathland with Plantations Landscape Type is defined *"primarily by the historic heathland land cover (now frequently replaced with arable fields), interspersed with small-medium scale blocks of mixed plantation woodland. The landscape type accommodates a range of land uses and has a less unified character than the Brecks: Plantations landscape type in view of this and the more open character created by the sparse, more varied woodland cover."*

5.4.4 The key characteristics of The Brecks – Heathland with Plantations Landscape Type are:

- A medium to large scale landscape characterised by areas of open farmland and heath and large coniferous plantations – changing perspectives from open to enclosed.
- River valleys cut through the Middle and Upper Chalk strata and plateaux rise to the north, creating a gently undulating landform with subtle slopes.
- Land cover is variable, ranging from intensively farmed arable fields, heathland and areas of coniferous plantation.
- Belts of twisted Scots pine, marking field boundaries and aligning roads, are sculptural features and points of focus.
- Settlement is dispersed and of low density but the urban edges of Swaffham and Thetford have an influence on the landscape.
- The skyline is prominent and for the most part wooded, defined by the solid lines of the coniferous blocks and shelter belt planting.
- Warrens, e.g. Beachamwell Warren and Gooderstone Warren are a distinctive feature.
- Views are often broken by tree cover allowing only glimpsed views into adjacent landscapes.
- Movement is variable –A roads and secondary routes bring a strong sense of movement to the landscape but away from these transport corridors, the area remains still and peaceful.
- Some large open, remote areas with few metalled roads or dwellings.

5.4.5 The site falls within Character Area D1: Swaffham Heath. This is a large area to the north-west, west and south-west of Swaffham where the character is defined primarily by the land use of arable farmland, historic parklands and plantation woodland and distinctive Scots pine belts.

5.4.6 The key characteristics of the Swaffham Heath character area are:

- Drift deposits of sand, clay and gravel create a gently undulating landscape, with topography ranging from 10-70m AOD across the character area.
- Free draining sandy soils support the functional land cover of arable cultivation, pig farming and plantation woodland.
- Ancient, contorted Scots pine shelterbelts and screening belts of trees provide shelter to the easily eroded brown soils and are a prominent landscape feature.
- At Cockleycley Heath and Swaffham Heath, the woodland plantation blocks create a visually prominent feature in the landscape.
- The large scale arable fields are delineated by hedgerows in variable condition from occasional species rich intact hedgerows with hedgerow trees, thorn hedges and pine lines.
- Breckland Farmland SSSI covers a large part of the character area – the cultivated land proving a habitat for stone curlew. A smaller area of Breckland Forest SSSI also covers part of the area.
- A large scale landscape, with an open, windswept character, quiet and seemingly remote in places.
- Sparsely populated - the settlement pattern is characterised by scattered Halls, farm buildings and a small number of nucleated villages and hamlets. Churches are often isolated.
- Distinctive building materials of knapped flint, clunch and brick.

5.4.7 The site is to some extent typical of the character of the wider Landscape Type. The landcover is typical of the wider Landscape Type, and characteristic coniferous plantations are present in the vicinity of the site. However the settlement pattern is not typical of the wider area as the site is located on the edge of a town, and the character of the site is partially influenced by its proximity to the urban area. The site itself is not quiet or remote, but is influenced by the presence of the A1065 which introduces a source of noise and movement.

5.4.8 The study identifies a number of positive landscape features of significance and inherent landscape sensitivities:

- The historic boundary features - distinctive Scots pine windbreaks and hedgerows.
- Remnant parkland features such as vistas to Cockleycley Hall, flint estate walls and lodge houses which provide a sense of historical integrity.
- The varied landcover mosaic created by the plantation woodland and farmland.
- Sparse settlement and rural character of the hamlets and villages.

- The narrow, often unmarked rural lanes and tracks.
- The ecological value of the arable farmland for birds, notably stone curlew.
- Areas of remnant heathland character.

5.4.9 The study made the following assessment of the visual sensitivities of the Swaffham Heath character area:

> *A predominantly open large-scale landscape with long, open views. Within the more enclosed wooded areas vistas which were designed into the landscape as parkland features, have in places been retained. These views create surprise historical markers within the landscape and would be sensitive to unsympathetic woodland management.*
>
> *The woodland blocks create an important focus to the landscape, particularly where views are across arable fields to woodland blocks on the skyline.*

5.4.10 In terms of landscape condition, the area is described as *"a functional, managed landscape with an eroding character in places due to loss of characteristic elements, notably heathland, degraded field boundaries, and changes in farming".*

5.4.11 The report recognises a number of past changes within the landscape including agricultural enclosure and loss of heathland, and an increasing influence of traffic on the character of the area with the widening of the A1065. This is particularly relevant to the character of the site, which is influenced by its proximity to the A1065 Brandon Road.

5.4.12 The landscape strategy for the area is to: *"conserve the remote, open, sparsely settled character of the Heathland with Plantation landscape – restoring and enhancing the heathland character where appropriate and managing the arable farmland to enhance its ecological value, particularly for farmland birds".*

5.4.13 The report includes a number of development guidelines which are as follows:

- Conserve the sparse settlement pattern of small villages associated with the edges of river valley and scattered farms.
- Ensure that any new built development fits with the local built vernacular, including use of materials (brick and flint).
- Conserve the existing rural road network, resisting traffic pressures and traffic calming measures which could have an urbanising influence.
- Consider the effect of tall or vertical structures within this very open, exposed landscape.

5.5 Summary of sensitivity of landscape character

5.5.1 The sensitivity of the character areas defined within The Brecks Landscape Character Assessment and the Breckland District Landscape Character Assessment are considered in Table 5.1

Table 5.1: Summary of Landscape character

	Relevant Key Characteristics and Condition	Landscape Sensitivity: Value	Landscape Sensitivity: Susceptibility to Change	Overall Landscape Sensitivity
The Brecks LCA				
Brecks Arable and Heathland Mosiac Landscape Type (as a whole)	• See above	High	High	High
Brecks Arable and Heathland Mosiac Landscape Type (in the vicinity of the site)	• See above	Medium	Medium	Medium
Rolling Clay Farmland (as a whole)	• See above	High	Medium	Medium
Rolling Clay Farmland (in the vicinity of the site)	• See above	Medium	Medium	Medium
Breckland District LCA				
Character Area D1: Swaffham Heath (as a whole)	• See above	High	High	High
Character Area D1: Swaffham Heath (in the vicinity of the site)	• See above	Medium	Medium	Medium

6 Visual context

6.1.1 The application site is located at the southern edge of the town of Swaffham. The landform around Swaffham consists of a gently undulating plateau, and the site and its surroundings are almost flat. The flat landform means that existing buildings and dense vegetation are effective in blocking or screening views. Despite being at the edge of settlement, the site is relatively contained. Existing suburban development, extending along the northern edge of the site, limits views from the north. The Redlands Park housing development to the east of Brandon Road (which is in the process of being built out) limits views from the east. The site is more open to the south and west. The site is potentially visible from roads and public rights

of way to the south and east of the site, principally Brandon Road and Cley Road. Views towards the site from these roads are partially contained by existing hedgerows which line the roads. A block of coniferous plantation woodland, forming part of a Forestry Commission plantation on Swaffham Heath, is located approximately 250m south of the site and this prevents views longer-distance towards the site from the south.

6.1.2 The following factors influence the extent of visibility:

- The plateau landform and the screening effect of existing buildings within the settlement edge and blocks of vegetation.
- Existing suburban development along the northern edge of the site which limits views from the north.
- Housing development to the east of Brandon Road which limits views from the east.
- A block of coniferous woodland approximately 250m south of the site which limits views from the south.
- The limited number of visual receptors to the west.
- The general absence of residential properties in the wider landscape.
- Hedgerows and blocks of vegetation within the wider landscape.

6.1.3 Figure 5: Representative Viewpoint Locations, illustrates the location of a set of representative viewpoints which have been used to assess the likely visual effects of the proposed development. These have been selected in discussion with planning officers at Breckland District Council. All the viewpoints are publicly-accessible or residential in nature and are at varying distances from the application site; it is considered that they include worst-case scenario of the views available. It is important to note that many of the viewpoints are points on public footpaths, and that the view described is frequently representative of that experienced from many other points on the route.

6.1.4 Table 6.1 includes details of the representative viewpoints, along with a judgement as to their visual value and their susceptibility to change as a result of the introduction of the proposed studio building, which together provide an assessment of each receptor's overall visual sensitivity. See the Figure 7 series for annotated photographs illustrating the composition of the view from each of the viewpoints.

6.1.5 The representative viewpoints considered can be split into five broad areas, varying in distance and direction of view to the proposed works:

- Close-proximity views from the edge of Swaffham, residential properties on adjoining the northern site boundary, e.g. Viewpoint A.

- Short-distance views from residential areas to the east of the site, including views from a public footpath through the residential area, e.g. Viewpoints C, E and F.
- Close and short distance views from Brandon Road, e.g. Viewpoint B, G and H.
- Middle-distance views from public rights of way to the east of the site, e.g. Viewpoint D.
- Short and middle-distance views from public rights of way in the wider landscape to the south and south-east, e.g. Viewpoint H, I, J and K.
- Middle-distance views from roads to west of the site including Cley Road and Beachamwell Road, e.g. Viewpoints L, M and N.

Table 6.1: Representative viewpoints

View, location & receptor type	Description	Visual Sensitivity: Value	Visual Sensitivity: Susceptibility to Change	Overall Visual Sensitivity
Viewpoint A Looking south Representative of short-distance views from residential properties immediately to the north of the site at Sutton Road and Surlingham Drive Adjoining northern site boundary. c.61m AOD	• Representative of view from residential properties adjoining the northern site boundary. • The site can be seen from twenty properties at Sutton Road, Ranworth Close, Ormesby Drive, Surlingham Drive and Hoveton Drive. • Some of the properties are single storey and have limited views over site. • Hedges or fences marking the property boundary limit views from ground floor windows and garden areas in some cases. Likewise mature trees and vegetation within gardens partially filter views from some properties. • Where available, open view over the large field which forms the main body of the application site towards the block of woodland on the southern site boundary. • The existing view extends beyond the boundary of application site to blocks of woodland and lines of trees in the wider landscape, which form the horizon.	Medium	High	High

View, location & receptor type	Description	Visual Sensitivity: Value	Visual Sensitivity: Susceptibility to Change	Overall Visual Sensitivity
	• The Redlands Park housing development can be seen at the left-hand edge of the view, and light columns at Brandon Road are visible above the existing hedge. The existing view does not feature any other built development.			
Viewpoint B Looking south Representative of short-distance views from Brandon Road and from residential properties within the Swans Nest development At north-eastern corner of the site c.61m AOD	• Representative of short-distance views from Brandon Road, looking south and south-west and from localised residential properties within the Swans Nest development. • The site can also be seen obliquely from a small number of properties within the Swans Nest development site. Residential development forms an existing component of the view. The A1065 Brandon Road is prominent in the foreground of the view • The site is visible to the right-hand side of the road. Views are generally limited by the dense hedgerow on the eastern site boundary: however, the upper portions of the existing woodland block within the site can also be seen above the hedge. • The road, footway, light columns and roundabout form a significant part of the view and, together with the Redlands Park development, give the left-hand side of the road a suburban character detracting from what might otherwise be a rural scene.	Medium	High	High
Viewpoint C Looking west Representative of short-distance views	• Representative of views from public footpath between the Redlands Park and Swans Nest developments.	Medium	High	High

View, location & receptor type	Description	Visual Sensitivity: Value	Visual Sensitivity: Susceptibility to Change	Overall Visual Sensitivity
from the public footpath Point on path c.60m AOD	• The public footpath was closed at the time of the visit. The accompanying photograph is taken from a street on the southern side of the hedge. • From the footpath, the dense hedgerow lining the footpath would screen views towards the site. • Two storey residential development at Redlands Park further limits views.			
Viewpoint D Looking west Representative of views from a public footpath east of the site and from Clarence House. c.680m to the east of the site c.60m AOD	• Representative of views from the public footpath east of the site and from Clarence House. • Views from the footpath in the direction of the site are screened by the dense hedgerow which lines the path. • Views towards the site are further limited by residential development at Redlands Park. • Views from Clarence House are interrupted by residential development within Redlands Park.	Medium	High	High
Viewpoint E Looking west Representative of short-distance views from Redland Road and from residential properties within the Redlands Park site c.25m to the east of the site c.60m AOD	• Representative of short-distance views from Redland Road and from localised residential properties within the Redlands Park site. • The foreground of the view is dominated by the A1065 road, roundabout and lighting columns, adding urbanising elements to the view. • Views into the footprint of the site are generally limited by the dense hedgerow on the eastern site boundary. • The woodland block within the site is prominent to the left-hand side of the view.	Medium	High	High

View, location & receptor type	Description	Visual Sensitivity: Value	Visual Sensitivity: Susceptibility to Change	Overall Visual Sensitivity
	More distant trees and woodland blocks to the south and west of the site can be seen above the existing hedge. • The upper portions of existing residential development on the southern edge of Swaffham, to the north of the site can be glimpsed above the hedge.			
Viewpoint F Looking west Representative of views from public open space within the Redlands Park site c.165m to the east of the site c.59m AOD	• Representative of views westwards from public open space within the Redlands Park development. • Existing residential development is prominent within the foreground of the view and blocks most views out. • Views towards the site are limited to a small segment at the centre of the view that encompasses the existing hedgerow on the eastern site boundary as well as more distant trees and woodland beyond the site.	Medium	Medium	Medium
Viewpoint G Looking north Representative of short-distance views from Brandon Road At south-eastern corner of the site c.60m AOD	• Representative of short-distance views from Brandon Road, looking north towards the site. • A group of sycamores on highway land adjacent to the site partially filters views into the eastern portion of the site. • The existing hedgerow on the southern site boundary filters views into the remainder of the site leaving only occasional glimpses. • The southern edge of Swaffham is visible in the centre of the view, and the Redlands Park development is visible to the right of the view.	Low	Medium	Low

View, location & receptor type	Description	Visual Sensitivity: Value	Visual Sensitivity: Susceptibility to Change	Overall Visual Sensitivity
Viewpoint H Looking north Representative of short to middle-distance views from public footpath and from Brandon Road c.160m to the south of the site c.60m AOD	• Representative of views northwards from public footpath. • To the south of the site, views from Brandon Road are largely contained by dense hedge adjoining the highway. • Views from the western part of the footpath are generally filtered by a hedgerow. The view is representative of sections of path which allow uninterrupted views i.e. where there is a gap in the hedge. • The group of sycamores at the south-eastern corner of the site supplement the hedge and partially filter views into the site itself. • Housing development at Redlands Park is visible to the right hand-side of the view.	Medium	High	High
Viewpoint I Looking west Representative of middle-distance views from public footpath, from Watton Road and from Carol House c.860m to the east of the site c.50m AOD	• Representative of views from much of the length of the public footpath between Watton Road and Carol House. • The site is potentially visible from two windows on the gable end of Carol House. • The site is visible in the middle-distance, although the footpath is screened by intervening hedgerows. The woodland block within the site can be seen on the horizon, together with glimpses of the woodland blocks beyond the site. • Residential development within Redlands Park is prominent at the right-hand side of the view, and the angle of view is such that this blocks the line of sight to a significant portion of the site.	Medium	High	High

View, location & receptor type	Description	Visual Sensitivity: Value	Visual Sensitivity: Susceptibility to Change	Overall Visual Sensitivity
Viewpoint J Looking north Representative of middle-distance views from restricted byway c. 700m to the south of the site c.50m AOD	• Representative of views from restricted byway to the south-east of the site. • The majority of the restricted byway is lined by mature hedgerows which limit views out in the direction of the site. • To the right the Redlands Park development is hidden by a slight rise in the ground levels. • From the western end of the byway, a line of conifers filters views towards the site supplemented by further intervening vegetation around Cherry Tree Farm.	Medium	High	High
Viewpoint K Looking north Representative of middle-distance views from restricted byway c. 680m to the south of the site c.50m AOD	• Representative of views from restricted byway to the south of the site. • Views from the restricted byway are generally contained by hedgerows to either side of the track with views out available only from the eastern end, close to Brandon Road. • Even where the hedgerow allows views, blocks of woodland prevent views towards the site from much of the restricted byway. • Existing buildings and mature trees at Cherry Tree Farm further screen views towards the site. • The Redlands Park development is hidden by a slight rise in the ground, supplemented by the hedges and trees that line Brandon Road.	Medium	High	High
Viewpoint L Looking north-east Representative of middle-distance views from Cley Road	• Representative of middle-distance views from Cley Road. • Views from the road are largely contained by a dense hedgerow abutting	Low	Medium	Low

View, location & receptor type	Description	Visual Sensitivity: Value	Visual Sensitivity: Susceptibility to Change	Overall Visual Sensitivity
c.960m to the south-west of the site c.49m AOD	the highway in the foreground. • Views to the footprint of the site from Cley Road are further filtered or blocked by intervening vegetation including woodland blocks, hedges and hedgerow trees.			
Viewpoint M Looking east Representative of middle-distance views from Cley Road and from a pair of semi-detached properties at Cley Road c.400m to the west of the site c.60m AOD	• Representative of views from Cley Road and from a pair of semi-detached properties at Cley Road. • Views towards the site from Cley Road are partially contained by a hedgerow abutting the highway boundary. • The site is visible in the middle distance from a short section of road adjacent to the semi-detached properties where there is a break in the hedge. The hedgerow to the north of the properties also has occasional breaks which allow intermittent views towards the site. • The foreground of the view is occupied by a paddock, a field and a farm track. • To the centre-left, the existing residential edge of Swaffham to the north of the site can be seen in the middle-distance. • Views from the residential properties are partially screened by a mature hedgerow marking the edge of the paddock.	Low	High	Medium
Viewpoint N Looking east Representative of longer-distance views from Beachamwell Road c.1.2km to the west of the site	• Representative of longer distance views from Beachamwell Road. • Views out from Beachamwell Road are generally contained by a dense hedgerow adjoining the highway.	Low	Medium	Low

View, location & receptor type	Description	Visual Sensitivity: Value	Visual Sensitivity: Susceptibility to Change	Overall Visual Sensitivity
c.50m AOD	• Further intervening vegetation is present between the site and the road including woodland blocks, tree lines and trees at Swaffham Golf Club and Snail Pit Farm, blocking views into the footprint of the site.			

7 Key landscape sensitivities

7.1 Potential landscape and visual receptors

7.1.1 Key sensitive receptors in the vicinity of the site are listed in Table 7.1 below, together with a brief outline of the likely effect and notes as to potential mitigation measures that might be appropriate to negate or offset such effects to within acceptable thresholds. It should be noted that such receptors and mitigation measures have been identified as part of the baseline assessment and without recourse to an appropriate impact assessment, thus they may not be exhaustive.

Table 7.1: Key sensitive landscape and visual receptors

Sensitive landscape and visual receptors	**Likely effect**	**Likely mitigation required**
Swaffham Conservation Area	No inter-visibility. Separated by intervening C20 development. No effect on setting of Conservation Area	
Scheduled Monument to south-east of the site	No inter-visibility. No effect on Scheduled Monument.	
Listed Building	Site is not near to any listed buildings. No effect on setting of listed buildings.	
Public rights of way	No physical effects on public rights of way. Effects limited to change in views from existing public rights of way. Public rights of way are some distance from site and views towards the site are limited. Some change to views but seen within the context of existing suburban development.	Retention and enhancement of existing vegetation framework.

Boundary features	Boundary features of moderate value. The condition of the feature varies.	Retain and reinforce existing hedges where possible. No development within the RPA of root protection area of hedges. Replace hedges with native species hedgerow where they have to be removed.
Existing vegetation including woodland	Existing rectangular woodland featuring mature trees.	Existing woodland to be retained within the design. Allow suitable offset. No development within root protection areas (RPAs) of existing trees.
Land-use	Development would result in a change in land-use.	
Gateway site	Site would extend urban development along western side of Brandon Road. Eastern side is already developed. Existing roundabout signifies entrance to the town.	Opportunities to create positive entrance to town. Landscape buffer to protect the amenity of the road. Short mown grass, hedges and trees would create appropriate setting for development. Reinforce hedgerow on southern site boundary.
Urban edge	Existing suburban development creates harsh urban edge.	Opportunities to create a greener, more robust and defendable urban edge with hedgerows and buffer planting to contain development.
Landscape designations	Landscape of site not covered by national or local landscape-related designations.	
Landscape character	Site shares some of the characteristics of the wider character area, but is influenced by proximity of the urban edge and the A1065 Brandon Road. Settlement pattern is not typical of the wider character area. Development would result in a change in the character of the site itself and its immediate surroundings. Site would become part of the urban area. Effect would be localised. Effects	Reinforcement and reestablishment of characteristic vegetation structure. Use of native tree and shrub species of local provenance. Reflection of typical architectural characteristics and materials in the form and design of the proposed built development.

	on character area as a whole would be limited.	
Views from Cley Road	Intermittent views towards site. Site would form an extension to existing C20 development.	Retention of existing vegetation structure.
Views from Brandon Road	Long-distance views limited by trees and woodland. Middle-distance views filtered by existing hedgerow.	Retention of existing vegetation structure. Development set back from road frontage to create a positive entrance to the town.
Views from private properties adjoining the northern site boundary	Loss of open views from a number of private properties adjoining the northern site boundary. Substantial change to the view.	Relationship with existing properties requires careful consideration at design stage. No built structures close to boundary, allow suitable offset. No public access. Opportunity for woodland buffer between existing and proposed development.

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

Land West of Brandon Road, Swaffham

Landscape and Visual Impact Assessment: Baseline

for

Abel Homes

Appendix 2: Figures

Planning

September 2017

To be printed in colour, duplex at A3

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

KEY

Application site

E17861 Land west of Brandon Road, Swaffham

Location plan

Figure 1
Scale 1:25,000 @ A3

September 2017

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

KEY

Application site

Elevations

70m AOD

60m AOD

50m AOD

40m AOD

30m AOD

E17861 Land west of Brandon Road, Swaffham

Topography

Figure 2
Scale 1:25,000 @ A3

September 2017

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

KEY

Application site

Consented development sites

National designations

Scheduled Monument

Listed building

Public rights of way

Swaffham Proposals Map - Adopted January 2012

Conservation Area

Open space

E17861 Land west of Brandon Road, Swaffham

Landscape-related designations

Figure 3
Scale 1:15,000 @ A3

September 2017

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

KEY

Application site

National Character Area profiles

NCA 84 - Mid Norfolk

NCA 85 - Breckland

Norfolk & Suffolk Brecks Landscape Character Assessment (2013) - Landscape Types

Rolling Clay Farmland

Brecks Arable Heathland Mosaic

River Valleys

Breckland Landscape Character Assessment (2007) - Landscape Character Areas

B - Settled Tributary Farmland
B5 - River Wissey Tributary Farmland

D - The Brecks - Heathland with Plantation
D1 - Swaffham Heath

E - Plateau Farmland
E6 - North Pickenham Plateau

Urban

E17861 Land west of Brandon Road, Swaffham

Landscape character typology

Figure 4
Scale 1:25,000 @ A3

September 2017

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

KEY

Application site

Consented development sites

A Viewpoint location

E17861 Land west of Brandon Road, Swaffham

Representative viewpoint locations

Figure 5
Scale 1:15,000 @ A3

September 2017

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Site

E17861 Land west of Brandon Road, Swaffham

Viewpoint A

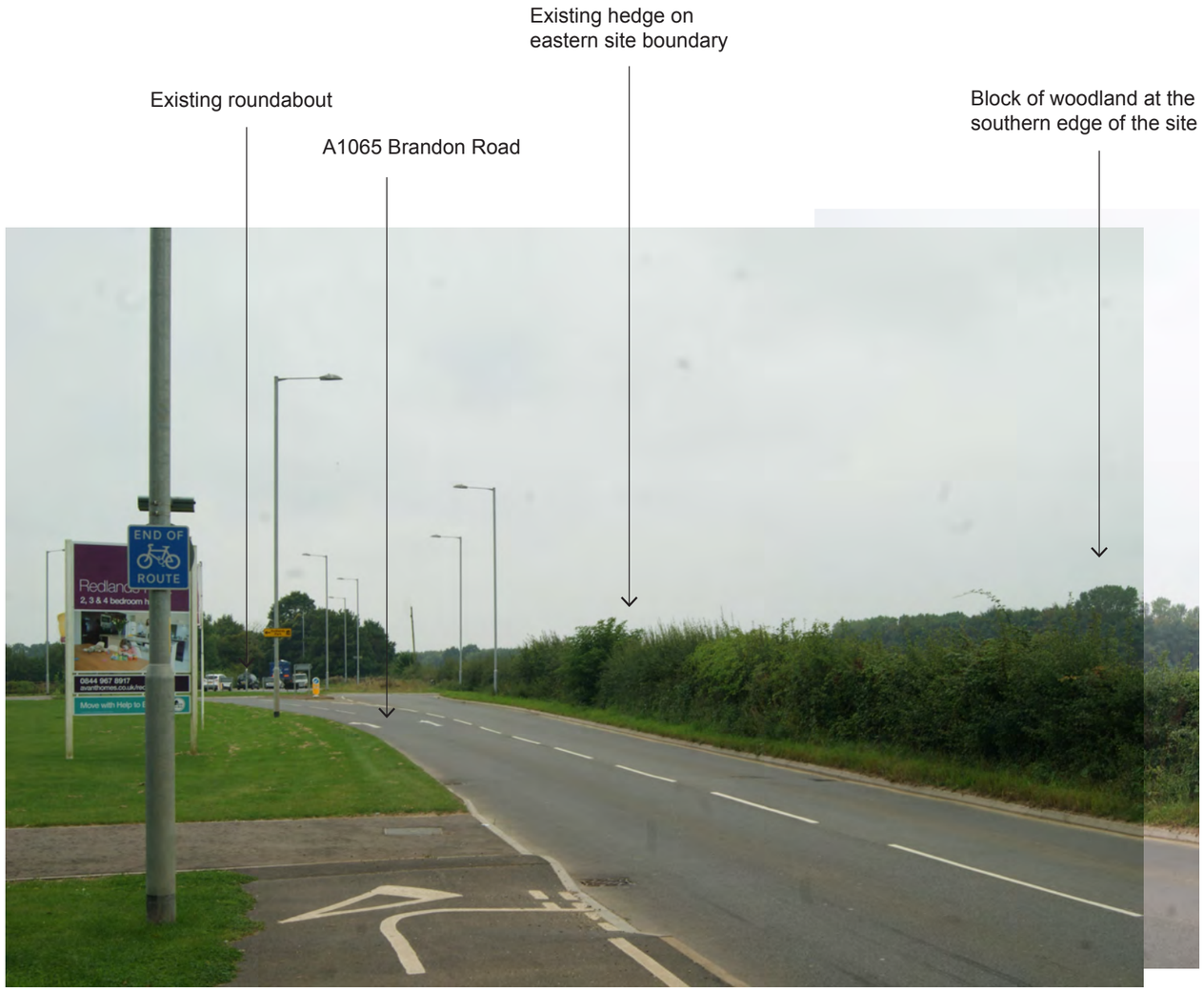
Figure 8i

September 2017

Viewpoint A
Representative of short-distance views from residential properties to the north of the site at Sutton Road and Surlingham Drive.

thelandscapepartnership

Appendix 1


Existing hedge on eastern site boundary
Existing roundabout
A1065 Brandon Road
Block of woodland at the southern edge of the site
END OF
ROUTE

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Site

E17861 Land west of Brandon Road, Swaffham

Viewpoint B

Figure 8ii

September 2017

Viewpoint B
Representative of short-distance views from Brandon Road and from localised residential properties within the Swans Nest site

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

E17861 Land west of Brandon Road, Swaffham

Viewpoint C

Figure 8iii

September 2017

Viewpoint C
Representative of short-distance views from the public footpath east of the A1065 Brandon Road

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Dense hedgerow screens views towards the site

Site

E17861 Land west of Brandon Road, Swaffham

Viewpoint D

Figure 8iv

September 2017

Viewpoint D
Representative of views from Public Footpath and from Clarence Hills

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

E17861 Land west of Brandon Road, Swaffham

Viewpoint E

Figure 8v

September 2017

Viewpoint E
Representative of short-distance views from Redland Road and from residential properties within the Redlands Park site

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

E17861 Land west of Brandon Road, Swaffham

Viewpoint F

Figure 8vi

September 2017

Viewpoint F
Representative of views from public open space within the Redlands Park site

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Site

E17861 Land west of Brandon Road, Swaffham

Viewpoint G

Figure 8vii

September 2017

Viewpoint G
Representative of short-distance views from A1065 Brandon Road

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Site

E17861 Land west of Brandon Road, Swaffham

Viewpoint H

Figure 8viii

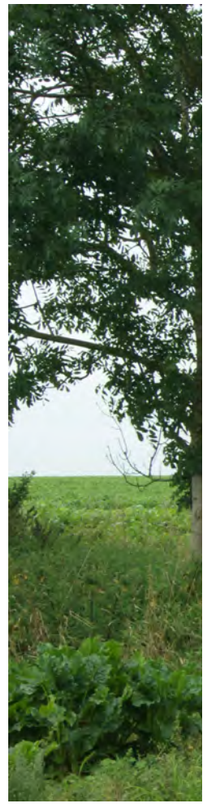
September 2017

Viewpoint H
Representative of short to middle-distance views from public footpath and from A1065 Brandon Road

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document



Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

E17861 Land west of Brandon Road, Swaffham

Viewpoint I

Figure 8ix

September 2017

Viewpoint I
Representative of middle-distance views from public footpath, from C768 Watton Road and from Carol House

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Restricted Byway (Swaffham RB49)

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

E17861 Land west of Brandon Road, Swaffham

Viewpoint J

Figure 8x

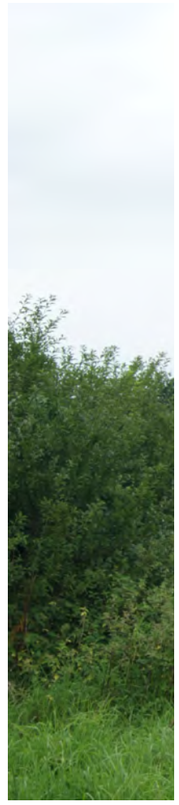
September 2017

Viewpoint J
Representative of middle-distance views from restricted byway between A1065 Brandon Road and C768 Watton Road

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document



Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

E17861 Land west of Brandon Road, Swaffham

Viewpoint K

Figure 8xi

September 2017

Viewpoint K
Representative of middle-distance views from Restricted Byway

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

C44 Cley Road

Site

E17861 Land west of Brandon Road, Swaffham

Viewpoint L

Figure 8xii

September 2017

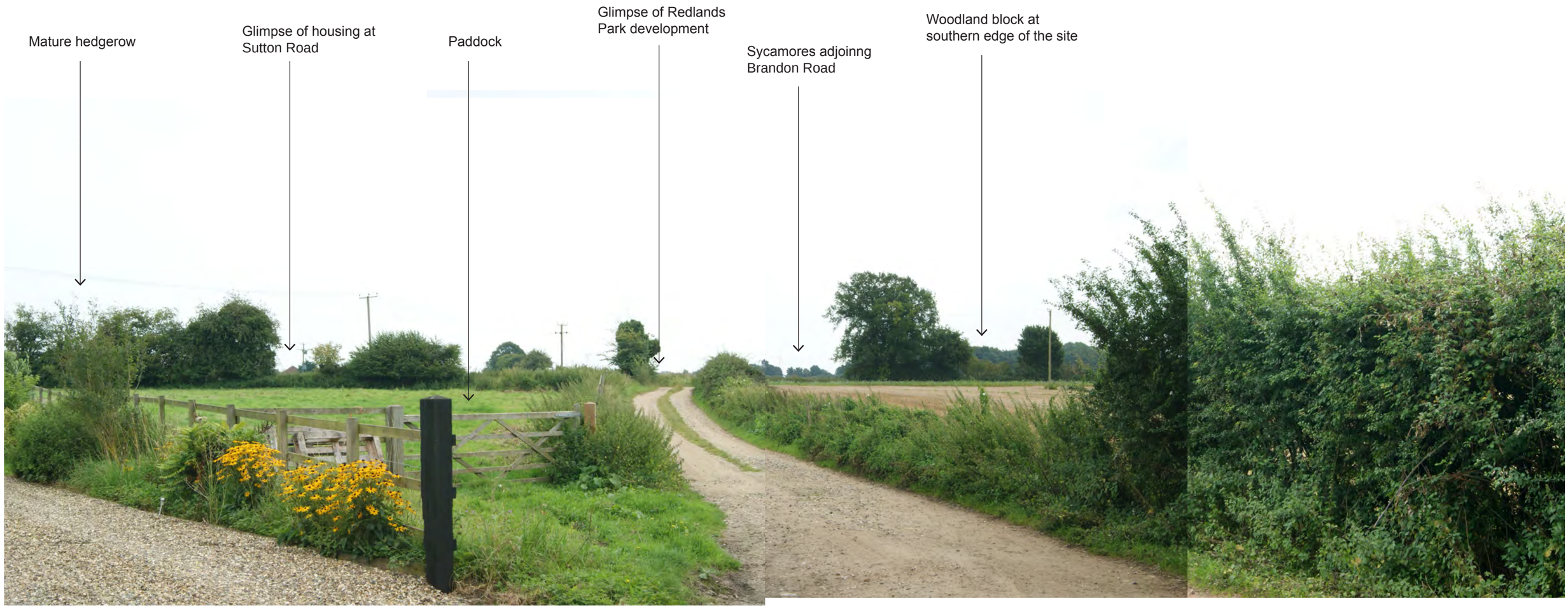
Viewpoint L
Representative of middle-distance views from C44 Cley Road

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1



E17861 Land west of Brandon Road, Swaffham

Viewpoint M

Figure 8xiii

September 2017

Viewpoint M
Representative of middle-distance views from C44 Cley Road and from pair of semi-detached properties fronting Cley Road

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

Appendix 1

Site

E17861 Land west of Brandon Road, Swaffham

Viewpoint N

Figure 8xiv

September 2017

Viewpoint N
Representative of long-distance views from C122 Beachamwell Road

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

KEY

Application site

A Viewpoint location

Significance of effect

Beneficial
- Major
- Major-Moderate
- Moderate
- Minor-Moderate
- Minor

Negligible / No Change

Adverse
- Minor
- Minor-Moderate
- Moderate
- Major-Moderate
- Major

N/A

E17861 Land west of Brandon Road, Swaffham

Visual Impact Assessment - Year one, winter

Figure 6
Scale 1:15,000 @ A3

September 2017

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

KEY

Application site

A Viewpoint location

Significance of effect

Beneficial
- Major
- Major-Moderate
- Moderate
- Minor-Moderate
- Minor

Negligible / No Change

Adverse
- Minor
- Minor-Moderate
- Moderate
- Major-Moderate
- Major

N/A

E17861 Land west of Brandon Road, Swaffham

Visual Impact Assessment - Year 10, summer

Figure 7
Scale 1:15,000 @ A3

September 2017

thelandscapepartnership

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

ILLUSTRATIVE MASTERPLAN

September 2017

Appendix 1

This refers to pages 52-60 of the Breckland Local Plan Pre-Submission Publication: Late and Unduly Made Representations document

ILLUSTRATIVE MASTERPLAN

September 2017