Land south of Salhouse Road
Sprowston

for

United Business and Leisure Ltd

21st December 2016
Client

United Business and Leisure Ltd.
Rowan House
28 Queens Road
Hethersett
Norwich
NR9 3DB

Salhouse Road, Norwich
Arboricultural Report

Planning authority

Broadland District Council
Thorpe Lodge
1 Yarmouth Road
Thorpe St Andrew
Norwich
NR7 0DU

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<th>Arboricultural Report</th>
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21 December 2016
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1 INTRODUCTION

1.1 Greenlight Environmental Consultancy Ltd. was commissioned by United Business Leisure Ltd. to carry out a pre-application preliminary arboricultural assessment for a residential development, Link Road, public open space and associated works South of Salhouse Road, across the parishes of Sprowston, and Great and Little Plumstead.

1.2 This document describes the environmental assets in terms of trees, woodlands and hedges on the site, the potential environmental effects of the project and the measures to be taken to mitigate against any adverse impacts.

1.3 An Environmental Statement ("ES") is being prepared for the proposed development, as it requires an Environmental Impact Assessment ("EIA") under The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended) (hereafter referred to as the Regulations).

1.4 This report provides an assessment of arboricultural effects from the proposed development, to inform the ES for the proposed development.

2 METHOD STATEMENT

Objectives

2.1 The key objectives of this arboricultural impact assessment are as follows:

- to establish existing/baseline arboricultural conditions;
- identify, predict and assess the significance of the effects of the development;
- identify mitigation, enhancement and monitoring measures to prevent, reduce or remedy significant adverse effects.

Scope of Works

2.2 The Local Planning Authority will provide a Scoping Opinion in line with Regulation 10 of the Regulations which sets out the information that ought to be provided in the ES. This report is concerned with woodlands, trees and hedges. There will be crossover with several other topic areas, and this report should be considered closely in conjunction with a review of:

- impact on Ecology and Nature Conservation; and
• impact on Landscape Character and Visual Assessment.

2.3 Woodland and trees have been assessed according to BS 5837:2012, Table 1 provides a summary of the categorisation criteria as stipulated. The full chart is provided at Appendix G.

<table>
<thead>
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<th>Tree category</th>
<th>Assessment</th>
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<tbody>
<tr>
<td>A</td>
<td>Trees of high value including those that are particularly good examples of their species and/or those that have visual importance or significant conservation or other value.</td>
</tr>
<tr>
<td>B</td>
<td>Trees of moderate value including those that do not qualify as Category A due to impaired condition and/or those that collectively have higher value than they would as individuals; also trees with material conservation or other value.</td>
</tr>
<tr>
<td>C</td>
<td>Trees of low value including those with very limited merit or impaired condition; trees offering transient or temporary landscape benefits.</td>
</tr>
<tr>
<td>D</td>
<td>Trees with irremediable defects and anticipated early loss due to collapse; dead trees or those in immediate decline and those with infectious pathogens that threaten other trees.</td>
</tr>
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</table>

Table 1, BS 5937:2012 tree categorisation criteria

2.4 Hedgerow is not afforded a quality value as it falls outside the scope of the BS 5837:2012 categorisation criteria. The assessment of hedgerow has instead been made in accordance with the Hedgerow Regulations 1997.

Assessment of the Impacts

2.5 Wherever possible, assessment has been quantitative. Where quantitative assessment has not been possible, qualitative assessment has been undertaken objectively using professional judgement. Where there are uncertainties, or assumptions have been made in the assessment process, these have been clearly stated. The assessment of impacts is made on the basis of the outline site layout provided and reproduced at Appendix I.

2.6 A number of criteria have been used to determine whether or not the potential effects of the development are 'significant'.

2.7 The following information is provided for each potential identified impact:

- Description of potential impact
- Geographical importance (International, National, Regional, District, Local)
• Assessment of impact before mitigation:
  o Adverse / Beneficial
  o Reversible / Irreversible
  o Short-term / Long-term

• Description of mitigation measures

• Assessment of impact following mitigation:
  o Adverse / Beneficial
  o Reversible / Irreversible
  o Short-term / Long-term

2.8 Level of significance is assessed using the following terms:

• “Severe” suggests complete destruction of valuable or unique habitat or species
• “Major” suggests substantial loss of valuable habitat or species
• “Moderate” suggests partial loss or damage of habitat or species
• “Minor” suggests disruption to habitat or species
• “Negligible” suggests ephemeral disturbance to habitat or species
• “None” suggests no disturbance
3 TREES, WOODLANDS AND HEDGES

This section reviews the trees, woodlands and hedges on the site. It is a requirement of any planning application where trees are present on a proposed development site, for an Arboricultural Impact Assessment to be produced. This process is documented in “BS5937:2012 Trees in relation to design, demolition and construction – Recommendations” which may be pertinent to the EIA. It is a topic that is a subset of other disciplines, including ecology and landscape.

Introduction

3.1 This is a rural green-field site currently in agricultural use that has abundant trees, woods and hedges and which contributes to the quality and appearance of the ecology and landscape of the area. An assessment of the important trees and groups has been made and the likely impacts that the proposed development may have on them.

3.2 Trees differ in their tolerance of root loss or disturbance, according to their age, species and condition. In addition, root growth, while typically concentrated in the top metre of soil, can be affected by existing site features, including natural and man-made topography and structures that can restrict tree root growth in any direction.

Baseline

3.3 The proposal site is located in the rural area of Sprowston. The surrounding area is well populated with individual trees, tree groups and larger woodlands. With a population of over 14,000 residents, Sprowston is one of the largest Civil Parishes in the County and became a Town Council in 2011. It is a major residential provider for Norwich City and incorporates a wide range of facilities.

3.4 The site itself is situated at the far edge of the parish between the Plumstead and Salhouse Roads which radiate out from the City Centre. The Salhouse Road forms the northern boundary of the site. The Plumstead Road is connected by an historic trackway, intended to be used as a connecting cycleway/footpath.

3.5 The site is within a well-wooded landscape of arable and pastoral farmland with hedged fields, small woodlands and tree belts and more substantial forestry plantations. To the southwest, the site is bounded by Racecourse Plantation, a moderately large area of commercially managed, mainly coniferous plantation woodland. To the north-west, beyond Salhouse Road lies The Breck and to the north-east a little further away stands Bulmer’s Coppice.
3.6 Currently, the majority of the site is used largely for agricultural purposes and includes extensive areas of tree plantation.

3.7 The total gross area included in the assessment is approximately 17.2ha of agricultural land enclosed by well-established hedgerows with occasional mature standard trees, and areas of mixed broadleaf woodland. Approximately 20% or 3.5ha is currently woodland, the remainder is arable farmland or grazing pasture with hedges and some areas of brownfield sites which have, or previously had, buildings on them.

3.8 The majority of the boundary trees on the site are broad-leaved, mature or over-mature and are of significant landscape, arboricultural and wildlife value.

3.9 The hedgerows are of good age and largely pre-date the woodland development, however they are increasingly suppressed by the adjacent growth of woodland. The hedgerow abutting the relatively recent housing development at Thorpe Hamlet to the south east of the site is in variable condition.

3.10 The woodlands are of relatively recent origin and include 1.5ha of mixed broad-leaved plantation belt running east to west across the middle of the site. This planting dates from the early 1990’s and is approximately 15 years old. The second main area of woodland is approximately 2.0ha, comprising secondary woodland of natural origin and a proportion of open ground within the woodland.

3.11 There are additional woodland areas adjacent to the site, including a mature largely coniferous woodland belt on the western boundary running north from Racecourse Plantation and a mature block of broadleaved woodland to the north-east of the Thorpe End housing development.

3.12 The excerpts from the Historical Maps of Norfolk in Figs. 1-3 in the appendix show the progression of land use from the first Edition OS map through to the 1988 aerial survey by Norfolk County Council.
4 PREDICTED IMPACTS

This section identifies all potentially significant likely effects, both during construction and post construction (positive and negative), such that mitigation can be identified where necessary.

Potential Arboricultural Impacts

4.1 Development has the potential to affect the existing trees, woodlands and hedges in a number of recognised ways:

- Direct loss through land take
- Severance or fragmentation of existing habitat
- Through the indirect effects of environmental pollution e.g. drainage, run-off, spills
- Cumulative effects due to other developments causing further disruption

4.2 The impacts may be caused by the construction of the development or by the operation of the development after completion. These impacts may be short or long term. Most “construction effects” are short term and many will cease on completion of the construction phase or within 10-15 years of its completion. Long term effects are those that would still be felt beyond this time.

4.3 Trees are living organisms that require a constant supply of air, water and nutrients to sustain healthy growth. They grow in response to their environment, and are unable to respond quickly to sudden changes in their conditions.

4.4 Development sites are aggressive environments for trees due to direct and indirect damage such as:

- physical damage to trunks or branches from large machinery,
- roots being severed by excavation for foundations or services,
- compaction of soil from heavy machinery or storage,
- toxic substances such as diesel or cement washings.

4.5 Compaction or sealing the soil with cement washings prevents the infiltration of water and oxygen to the roots of the trees, leading to root death and corresponding die-back in the crown.

4.6 Dead or severed roots are prone to fungal infection which can transfer to living tissue, killing or destabilising the whole tree. As these effects can take a period of years to manifest, they are frequently underestimated at the time or misdiagnosed later.
4.7 It is essential to the continued safe useful life expectancy of retained trees to ensure that all construction activity is excluded from root protection areas.

4.8 Activities relating to the storage or transfer of toxic materials will need to be located at a greater distance.

4.9 This report covers details of the management of woodlands, trees and hedges within and adjacent to the site including any proposed felling and strategic planting.

**Habitat and Site Evaluation**

**Designated Sites**

4.10 The Natural England interactive website MAGIC provides authoritative geographic information about the natural environment from across government. Levels of importance can be graded at the International, National, Regional, County or Local level and in terms of low, medium or high value.

4.11 The woodlands are recorded on the National Inventory of Woodland and shown in Appendix E. This shows some out-of-date data in terms of the north eastern corner of Racecourse Plantation that has been shown in the historic aerial photographs to have been lost several years ago. It also records areas deemed to be Ancient Woodland (“AW”) including Plantation on Ancient Woodland Sites (“PAWS”).

4.12 There are no areas of recognised Ancient Woodland within the study area. Racecourse Plantation, as the name suggests, is plantation woodland on former heathland. The nearest PAWS is Bulmer’s Coppice to the north east.

4.13 There are no impacts of any significance on designated ancient woodland sites.

**Statutory Wildlife Sites**

4.14 There are no statutory designated nature conservation sites, such as Special Protected Areas (“SPA”) or Sites of Special Scientific Interest (“SSSI”) within the application site.

4.15 The nearest internationally protected site is the Broads Special Area of Conservation (“SAC”), located at 4.5km from the site across the Yare Valley at Surlingham Broad.

4.16 There are no impacts of any significance on designated wildlife sites.
Non-Statutory Wildlife Sites

4.17 There are no non-statutory designated sites within the application site.

4.18 The nearest non-statutory designated site is Racecourse Plantation County Wildlife Site (“CWS”) which abuts to the west of the site (see Figure 4). The next nearest non-statutorily designated site is that of Bulmer’s Coppice CWS, which is located approximately 0.5km east of the site. Bulmer’s Coppice CWS is separated from the application site by an existing main road. It is not considered the development proposals will have any detrimental impact on either of the above CWS. The possibility of increased recreational pressure on the CWS has been assessed although it is considered with the provision of alternative open space being provided as part of the proposals and the fact the CWS has a well maintained network of existing paths, which would readily absorb an increase in recreational pressure.

4.19 Mousehold Heath LNR has sections designated as a County Wildlife Site, it is located approximately 1.3km to the southwest of the application site, within the A140 ring road of Norwich. It is considered unlikely that the development proposals will have any direct significant impact upon this designated site due to it being spatially distant and separated by substantial existing development.

4.20 In addition, habitats of local importance are often highlighted within a local Biodiversity Action Plan (“BAP”). The Norfolk BAP highlights hedgerows and mixed lowland broadleaved woodlands as priority habitats. The hedgerows and woodland within the site are largely being retained and enhanced.

4.21 The proposals involve the loss of a small area of relatively recently planted mixed woodland and the impact is at the County scale and of minor significance.

Woodlands

4.22 The field survey identified five areas of woodland of relevance to the study site. Three of these stand on adjacent property but nevertheless have the potential to experience impacts from a change of land use on the site. The woodlands are identified on the survey plan below in Appendix H.

4.23 W1 is Racecourse Plantation, a relatively large, commercially managed area of mixed coniferous and broad-leaved woodland abutting the south-eastern boundary. The trees are mature and in the normal course of forest management may be harvested by thinning of clear felling and replanting. Whilst there is generally some informal access to a large part of the woodlands, the public are
discouraged from using the section that abuts the study site for it is used intensively by an archery organisation. The boundary has a highly evident and well preserved earth bank that marks the parish boundary and is of some cultural significance. Where this borders the arable cultivation, there are few trees of any quality on the boundary and only a buffer to preserve the earth bank would be required as part of the development proposals. This woodland is given a B2 category.

4.24 **W2** refers to the area of woodland in the southernmost section. This area of woodland has grown up of natural origin in the uncultivated area of the site. It is comprised predominantly of silver birch with other pioneer species such as grey sallow, rowan, oak and sycamore with a poorly developed shrub layer of elder and thorns. The field layer is dominated by bracken, bramble and common nettle. The most northerly part for at least 60m south of the cultivated field contains an assortment of dismantled old buildings. A system of water filled pits and ponds can be found next to the boundary with Racecourse plantation. There is a further pond on the eastern edge of the wood, inside a partly suppressed hawthorn hedgerow along the edge of the cultivated field. The woodland is of mediocre quality and is accorded a category C2, however it does contain some higher quality trees. A row of oak trees can be discerned which may offer a natural edge to delineate the northern edge for development.

4.25 **W3** is a mature wood of predominantly Scots pine and European larch standing on neighbouring land. It is largely beyond the impact of any development however there is a group of large mature beech near the boundary at the southern end of the wood, and two high quality veteran oak trees at the more northerly end, which are considered as individual trees for the purposes of impact assessment. The bulk of the woodland is a poorly structured plantation with little understorey. The larch are suffering from butt rot and a number have failed at the base. There is no real shrub or field layer. There is a group of lime in the centre of the wood which is seeding profusely into the field. Nevertheless, it is a prominent landscape feature, screening the housing development to the west and is given a category B2 grading.

4.26 **W4** references the young plantation belt running in an east to west direction that spans the length of the arable field. This plantation connects the mature broadleaved woodland W5 to Racecourse plantation and widens at each end. The species are very mixed and includes oak and ash as the main component, but also intimately mixed in are sweet chestnut, hornbeam, wild cherry and lime. There is a patch of coppiced sycamore towards the western end. There have been few failures from an original planting spaced at 3m x 3m and the canopy has closed, which combined with intensive rabbit and deer browsing leaves a bare field layer. Only at the edges can one find vigorous grasses and bracken. The northern side of the woodland belt follows the old field boundary hedge which in
turn follows the route of an unscheduled archaeological monument, identified as the route of a
mediaeval road known as the Ranworth Way. The trees are estimated to be around 20 years old
and will shortly be due for thinning. This woodland is important for its ecological function in
connecting the woodland habitats across the site and for its landscape contribution, but
individually the trees are deemed of minor significance. This woodland is graded category C3.

4.27 **W5** is again on adjacent property but is a well-structured, mature broad-leaved woodland of high
ecological value. It shares a boundary only with W4 which, if retained, would offer sufficient
protection from impact. This is given a category B1.

4.28 In general, the mixed lowland broadleaved woodland is an England and Norfolk Biodiversity Action
Plan priority habitat. The woodlands are of importance in nature conservation terms at the local
level, providing nesting and foraging habitat for most bird species recorded within the application
site, whilst providing foraging opportunities for local mammals and bat species. Proposals may
include the creation of rides and other ecologically sensitive management. It would be important to
retain the connectivity between woodlands and there is also an opportunity to create new
woodland.

4.29 The development proposals will result in the loss of a minor section of the plantation belt W4 for
an access road.

4.30 During the construction phase there is some possibility of damage to woodlands from construction
activity and traffic.

4.31 Impacts are at the local level and are of minor significance.

**Hedgerows**

4.32 Species-rich and / or ancient hedgerows are a UK and Norfolk BAP habitat. Under the UK BAP,
species-rich hedgerows are those that contain five or more native woody species on average in a
30m length. Hedges that contain fewer woody species but a rich basal flora of herbaceous plants
are also considered as species rich. These are often but not necessarily ancient hedges; recent
species rich hedges also fall into this definition.

4.33 The aims of the BAPs are to halt the net loss of species rich hedgerows through neglect, removal
or inappropriate management and encourage new planting of mixed hedges. The hedgerows
present within the application site are considered to be of local value due to the connectivity they
provide across the application site and the overall length present on the application site. Many
are situated against the woodlands already mentioned and already heavily suppressed. They are
generally species-poor in nature and would not meet the criteria to be classified as “important” under the Hedgerow Regulations 1997.

4.34 The predicted impacts will comprise losses of sections of species-poor hedgerows, in particular where the access road crosses such habitat. In addition, potential indirect impacts on retained hedgerows could occur during the construction phase.

4.35 Prior to mitigation, impacts are at the local level and are of minor significance.

**Trees**

4.36 The methods and standards for the assessment of trees on development sites is prescribed in “BS5937:2012 Trees in relation to design, demolition and construction – Recommendations”. In general terms, this involves the categorization of the tree stock by assessing their quality and value according to a range of criteria and attributing them to a sub-category for their principle value.

4.37 This process is applied to individual trees, tree groups or woodlands as deemed appropriate, from which one can deduce the relative priority for retention of the current tree stock.

4.38 Additional data is recorded for each tree or group in order to provide an indication of the proximity to which development may be carried out.

4.39 A number of mature trees are present within and adjacent to the application site and are identified individually on the tree survey plan (Appendix G) along with the recommended root protection areas as prescribed in BS5837:2012.

4.40 A number of these trees may have potential roosting features and nesting opportunities for bat and birds, which it is assumed will be assessed under separate ecological surveys.

4.41 The trees must be protected throughout the development and an arboricultural method statement will be required as part of the detailed planning permission.

4.42 All individual trees can be successfully protected from any adverse impact which would be at the local level and are of negligible significance.
5 MITIGATION

This section describes the measures that could be implemented to provide enhancements or to mitigate the potential impacts identified in the previous chapter and assesses the significance of the impact following enhancement or mitigation.

Designated Sites and Statutory Wildlife Sites

5.1 Mitigation is not required as there are no statutory designated sites affected.

5.2 Impacts are at the local level and of no significance.

Non-Statutory Wildlife Sites

5.3 Although the provision of open space and recreational will no doubt be provided as part of the scheme design, there is the possibility of increased recreational pressure to the Racecourse Plantation CWS. There is also potential for indirect impacts on the woodland as a result of construction activities.

5.4 Mitigation by way of incorporating a buffer zone against the development can afford adequate protection and in particular to ensure that protective measures are written in to the detailed Construction Method Statement.

5.5 Impacts after mitigation are local and of negligible significance.

Woodlands

5.6 It is envisaged that the retained woodlands will be made available to the public with the creation of paths and allowing access. Fencing may be needed to protect areas of valuable ground flora of the woodland and woodland wildlife.

5.7 Before the construction phase, the woodlands should be protected with a buffer zone demarcated by temporary fencing as would be required within the arboricultural method statement. Construction workers will be advised to avoid any possible damage to the trees on the border of the woodland.

5.8 Creation of new woodland should be planted with native species that are already present within the application site. This will compensate for the losses that occur within the central woodland belt.
5.9 The provision of a comprehensive scheme of landscape planting comprising native species will offset any losses that do occur.

5.10 The management of landscape planting and retained woodland, incorporating a graded woodland edge profile will be specifically aimed at increasing the ecological value of the site and providing opportunities for species, which are currently absent from the site, whilst retaining current opportunities.

5.11 Potential adverse construction effects on the woodlands as a result of the development proposals will be mitigated through the implementation of protective measures as part of the CMS, resulting in no significant adverse residual effects. The provision of management within these woodlands and sensitive design of the development will protect the woodlands and ensure no detrimental effects occur in the long-term, whilst net gains will be achieved.

5.12 Following mitigation, impacts are beneficial at the local level and are of minor significance.

**Hedgerows**

5.13 The hedgerows that are to be retained should be bolstered with native species to increase their diversity wherever necessary. In addition, traditional management methods, such as coppicing and hedge-laying should be employed to provide greater structure to the hedgerow and increase their value as habitats and wildlife dispersal corridors.

5.14 Where new hedgerows / boundary features are planted, these should comprise native species and where possible they should link other features, including other hedgerows and woodlands.

5.15 Cutting of hedgerows should ideally be undertaken in January / February so fruit is left overwinter to provide a food resource for mammals and birds. Furthermore, cutting of hedgerows should be staggered over the site and ideally only one side of a hedgerow cut in any given year.

5.16 Measures should be put in place to ensure that retained hedgerows are safeguarded from direct impacts during the construction phase. These measures will further the aims and objectives of the England and Norfolk BAP for this habitat.

5.17 Any adverse effects on the hedgerow network within the site, which is considered to be of local value, will be mitigated through the implementation of protective measures together with the proposals for the provision of new planting and management of the existing hedgerows. As such, following mitigation the proposals will not result in any significant adverse residual impacts on the hedgerows, and may potentially result in ecological benefits in the long-term.
5.18 Following mitigation, impacts are beneficial at the local level and are of minor significance.

**Trees**

5.19 New tree planting may be proposed and any such planting should be based around native species of local provenance, wherever possible.

5.20 The loss of potential roosting and nesting opportunities should be compensated for through the provision of bat and bird boxes, which should be erected on retained mature trees and be positioned in suitable locations (i.e. out of reach of predators and casual vandals). No trees should be felled during the bird breeding season (March-July inclusive).

5.21 Following mitigation, impacts are beneficial at the local level and are of minor significance.
6 SUMMARY AND CONCLUSIONS

6.1 This assessment is based on local knowledge from site inspections, and desk study evidence publicly available. Further data may be available through consulting the recognised bodies involved in nature conservation within the area. The value of the tree stock identified through the survey is interpreted within the context of recognised methodology in BS5937:2012.

6.2 A summary of impacts is provided in Table 1 below.

Statutory Sites

6.3 There are no statutory protected sites within the predicted zone of influence or considered likely to be affected by the proposed development.

Non-Statutory Sites

6.4 No non-statutory designated sites are present within the application site, although there is one CWS which abuts the site. This is Racecourse Plantation CWS (TG 268107), which is located to the south of Salhouse Road, and immediately to the west of the study site. It is considered that the development will have no detrimental impact on this designated site as it is well buffered from the proposed development by the existing woodland blocks to the south of the application site. The possibility of increased recreational pressure on the CWS has been assessed although it is considered with the provision of alternative open space being provided as part of the proposals and the fact the CWS has a well maintained network of existing paths which would readily absorb increased recreational pressure.

6.5 Mousehold Heath Local Nature Reserve (LNR) (TG 245103) has a section of land designated as a CWS. It is located approximately 1.3km to the southwest of the application site, within the A140 Norwich ring road. The site consists of a mixture of Oak/Birch woodland, scrub, acid grassland and remnant heath and support a number of fauna species commonly associated with these habitat types. It is considered that the development proposals will have no detrimental effect on this designated site due to it being well buffered by existing development.
Woodland, hedgerows and trees

6.6 The woodlands are well protected with a buffer zone through the design of the site layout and this can be reinforced during the construction phase by temporary fencing as would be required within the arboricultural method statement.

6.7 Creation of new woodland should be planted with native species that are already present within the application site. This will compensate for the losses that occur within the central woodland belt.

6.8 Potential adverse construction effects on the woodlands as a result of the development proposals will be mitigated through the implementation of protective measures as part of the CMS, resulting in no significant adverse residual effects. The provision of management within these woodlands and sensitive design of the development will protect the woodlands and ensure no detrimental effects occur in the long-term, whilst net gains will be achieved.

6.9 Losses of parts of some hedgerows and trees are compensated for through the provision of new landscape planting that will be undertaken using native species of local provenance and habitat creation and habitat improvements. A management plan for the created and retained habitats should be produced based around sound ecological principles.
## Summary table of impacts

<table>
<thead>
<tr>
<th>Description of impact</th>
<th>Geographical importance</th>
<th>Before mitigation</th>
<th>Mitigation measures</th>
<th>After mitigation</th>
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<td>Indirect damage to retained woodlands during construction phase</td>
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### Table 1, summary of predicted impacts and residual effects after mitigation

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<th>Description of impact</th>
<th>Geographical importance</th>
<th>Before mitigation</th>
<th>Mitigation measures</th>
<th>After mitigation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of sections of species-poor hedgerows</td>
<td>Local</td>
<td>Adv</td>
<td>Reversible/Irrversible</td>
<td>LT</td>
<td>Minor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Improve retained hedgerows with additional native species and restoration of sensitive management methods</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indirect damage to retained hedgerows during construction phase</td>
<td>Local</td>
<td>Adv</td>
<td>Reversible/Rev</td>
<td>ST</td>
<td>Minor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Majority of hedgerow is on external boundary. Ensure protective measures are detailed in the CMS and adhered to in practice</td>
<td></td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of boundary trees</td>
<td>local</td>
<td>Adv</td>
<td>Reversible/Irrversible</td>
<td>LT</td>
<td>Minor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Majority of trees outside the woodlands are on external boundaries and are to be incorporated into the proposals, whilst new planting may off-set any losses that occur</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

21 December 2016
Appendix A

Extract from First Edition OS Map, circa 1888

The field layout has changed little, many boundary trees remain. The northern corner of Racecourse Plantation is shown as mixed plantation woodland and has now been lost to agriculture. The area at the top of the lane now described as secondary woodland is shown as treeless heath.
The field layout has changed little, many boundary trees have been removed. The northern corner of Racecourse Plantation is now quite patchy. The area at the top of the lane is quite open and bears some construction.
The field layout has changed a little with some fields being combined, many boundary trees have been removed. The northern corner of Racecourse Plantation is now completely open ground. The area at the top of the lane clearly shows buildings and developing woodland. Still no sign of the central woodland belt.
Appendix E

Salhouse Road Site - Woodland Habitat

www.magic.gov.uk, date accessed 7.4.16
Appendix F

Tree Survey Table
<table>
<thead>
<tr>
<th>Tree no.</th>
<th>Species</th>
<th>Height (m)</th>
<th>Diam (mm)</th>
<th>Canopy clearance or Ht of FSB (m)</th>
<th>Spread</th>
<th>Age class</th>
<th>Physiological and structural condition</th>
<th>Recommendations/Comment</th>
<th>Estimated remaining contribution (years)</th>
<th>BS5837 category grading</th>
<th>Root protection radius (m)*</th>
<th>RPA (m$^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Oak</td>
<td>14</td>
<td>650*</td>
<td>3.5m NE</td>
<td>7 8</td>
<td>Mature</td>
<td>Fair</td>
<td>Twin stemmed with poor union at base</td>
<td>&gt;40 yrs</td>
<td>B1</td>
<td>7.8</td>
<td>191</td>
</tr>
<tr>
<td>T2</td>
<td>Silver birch</td>
<td>14</td>
<td>320</td>
<td>5m SE</td>
<td>3 4 4</td>
<td>Semi-mature</td>
<td>Fair</td>
<td>Stem singled, decay at stump, physical damage at base</td>
<td>20 to 40 yrs</td>
<td>C2</td>
<td>3.8</td>
<td>46</td>
</tr>
<tr>
<td>T3</td>
<td>Oak</td>
<td>14</td>
<td>550*</td>
<td>1.8m W</td>
<td>5 2 6</td>
<td>Semi-mature</td>
<td>Good</td>
<td>Suppressed crown</td>
<td>&gt;40 yrs</td>
<td>B1</td>
<td>6.7</td>
<td>141</td>
</tr>
<tr>
<td>T4</td>
<td>Oak</td>
<td>20</td>
<td>1100</td>
<td>5m S</td>
<td>8 7 10</td>
<td>Veteran</td>
<td>Good</td>
<td>Retain</td>
<td>&gt;40 yrs</td>
<td>A1</td>
<td>13.2</td>
<td>547</td>
</tr>
<tr>
<td>T5</td>
<td>Oak</td>
<td>20</td>
<td>1000</td>
<td>n/a</td>
<td>10 9 10</td>
<td>Veteran</td>
<td>Good</td>
<td>Some major dead wood</td>
<td>&gt;40 yrs</td>
<td>A1</td>
<td>12</td>
<td>452</td>
</tr>
<tr>
<td>T6</td>
<td>Oak (x3)</td>
<td>20</td>
<td>800</td>
<td>2.5m W</td>
<td>15 6 15</td>
<td>Mature</td>
<td>Good</td>
<td>Three tree with low crown break as once cut to hedge height</td>
<td>&gt;40 yrs</td>
<td>B2</td>
<td>9.6</td>
<td>289</td>
</tr>
<tr>
<td>T7</td>
<td>Oak</td>
<td>20</td>
<td>1070</td>
<td>n/a</td>
<td>10 10 8</td>
<td>Mature</td>
<td>Good</td>
<td>No action</td>
<td>&gt;40 yrs</td>
<td>A2</td>
<td>12.8</td>
<td>518</td>
</tr>
</tbody>
</table>
### Arboricultural Report

#### Wood composition and conditions

<table>
<thead>
<tr>
<th>Wood ref</th>
<th>Species composition</th>
<th>Height</th>
<th>Mean diameter</th>
<th>Maturity</th>
<th>Overall condition</th>
<th>Comments</th>
<th>Remaining useful life</th>
<th>Quality category</th>
<th>Recommended root protection radius (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>W1</td>
<td>Mixed conifer and broadleaved</td>
<td>18</td>
<td>600</td>
<td>Mature</td>
<td>Good</td>
<td>On adjacent land thus management outside control</td>
<td>&gt;40 yrs</td>
<td>B2</td>
<td>7.2</td>
</tr>
<tr>
<td>W2</td>
<td>Mainly broad leaved pioneer species</td>
<td>18</td>
<td>400</td>
<td>Semi mature</td>
<td>Fair</td>
<td>Much opportunity to enhance and improve.</td>
<td>&gt;40 yrs</td>
<td>C2</td>
<td>4.8</td>
</tr>
<tr>
<td>W3</td>
<td>Mainly Scots pine and larch with occasional broad leaved species</td>
<td>18</td>
<td>600</td>
<td>Mature</td>
<td>Good</td>
<td>On adjacent land thus management outside control</td>
<td>&gt;40 yrs</td>
<td>B2</td>
<td>7.2</td>
</tr>
<tr>
<td>W4</td>
<td>Wide range of mixed broad-leaved species</td>
<td>8</td>
<td>180</td>
<td>Young</td>
<td>Fair</td>
<td>Narrow linear feature with limited scope for access but important ecologically for its connectivity</td>
<td>&gt;40 yrs</td>
<td>C3</td>
<td>2.2</td>
</tr>
<tr>
<td>W5</td>
<td>Mixed broadleaved species</td>
<td>17</td>
<td>800</td>
<td>Mature</td>
<td>Good</td>
<td>On adjacent land thus management outside control</td>
<td>&gt;40 yrs</td>
<td>B1</td>
<td>9.6</td>
</tr>
</tbody>
</table>

**Key**  
Age class:  
- **Young** (1st 1/3rd of life expectancy)  
- **Semi-mature** (2nd 3rd of life expectancy)  
- **Mature** (final 1/3rd of life expectancy)  
- **Over mature** (beyond life expectancy and declining naturally)  
- **Veteran** (of great age for its species and possibly of conservation value)  

* derived measurement using protocols in BS5837
Appendix G

BS 5837:2012 Table 1 Cascade for tree quality assessment
### Table 1: Cascade chart for tree quality assessment

<table>
<thead>
<tr>
<th>Category and definition</th>
<th>Criteria (including subcategories where appropriate)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trees unsuitable for retention</strong>&lt;br&gt;Category U&lt;br&gt;Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years</td>
<td>- Trees that have a serious, irreparable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g., where for whatever reason, the loss of companion shelter cannot be mitigated by pruning)&lt;br&gt;- Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline&lt;br&gt;- Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality</td>
</tr>
</tbody>
</table>
| **Tree quality assessment categories**<br>1 Mainly arboricultural qualities<br>2 Mainly landscape qualities<br>3 Mainly cultural values, including conservation | <br>**Category A**<br>Trees of high quality with an estimated remaining life expectancy of at least 40 years<br>Trees that are particularly good examples of their species, especially if rare or unusual, or those that are essential components of groups or formal or semi-formal arboricultural features (e.g., the dominant and/or principal trees within an avenue)<br><br>**Category B**<br>Trees of moderate quality with an estimated remaining life expectancy of at least 20 years<br>Trees that might be included in category A but are downgraded because of impaired condition (e.g., presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation<br><br>**Category C**<br>Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm<br>Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories<br>Unremarkable trees, such as young trees of very limited merit, or such impaired condition that they do not qualify in higher categories<br>Unremarkable trees, such as young trees of very limited merit, or such impaired condition that they do not qualify in higher categories | <br>Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features<br>Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality<br>Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits<br>Trees with material conservation or other cultural value<br>Trees with material conservation or other cultural value
Appendix H

Tree plan
Land south of Salhouse Road  Arboricultural Report

21 December 2016
Appendix I - Illustrative site layout