



Hallam Land Management Ltd

Calcott Hall Farm, Brentwood

PRELIMINARY ARBORICULTURAL ASSESSMENT

March 2019

FPCR Environment and Design Ltd

Registered Office: Lockington Hall, Lockington, Derby DE74 2RH

Company No. 07128076. [T] 01509 672772 [F] 01509 674565 [E] mail@fpcr.co.uk [W] www.fpcr.co.uk

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1.0 INTRODUCTION

- 1.1 This preliminary arboricultural assessment has been prepared by FPCR Environment and Design Limited on behalf of Hallam Land Management Ltd to present the findings of an Arboricultural Survey of trees located at Calcott Hall Farm, Brentwood, centered on OS Grid Ref TQ 581 946.
- 1.2 This assessment is based on the findings of a tree survey carried out on 6th February 2019 in accordance with guidance contained within British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations' (hereafter referred to as BS5837). The guidelines set out a structured assessment methodology to assist in determining which trees would be deemed either as being suitable or unsuitable for retention and provides recommendations for considering the relationship between existing trees and how those trees may integrate into designs for development; demolition operations and future construction processes so that a harmonious and sustainable relationship between any retained trees and built structures can be achieved.
- 1.3 This initial investigation has therefore been made to determine arboricultural species, value and any irreplaceable habitats present within the site and immediate surrounds. This summary presents the results of the assessment of the existing trees' arboricultural value, based on their current condition and quality advising upon the arboricultural constraints and opportunities to any future development of the site.
- 1.4 It is understood that at this early stage the proposals, as outlined by the draft Capacity Plan prepared by FPCR Environment and Design in 2018, demonstrate a development which includes new housing and community facilities including a primary school, with associated infrastructure and landscaping.

Site Description

- 1.5 The site measures approximately 47.6ha in total. The towns of Brentwood and Pilgrims Hatch are located to the south-east, north and north-east of the site respectively. Weald Road forms the southern site boundary with land under arable cultivation and pasture beyond. The eastern boundary is formed by the main A12 road and its associated buffer planting; fields and buildings associated with Calcott Hall Farm; and the Larkins playing field. Ongar Road, and its residential dwellings and gardens form the northern boundary, whilst the western boundary is formed by Sandpit Lane with the Weald Park Country Park and Local Wildlife Site (LWS) beyond it.
- 1.6 The site consists of seven arable field compartments separated by mature and established mix species hedgerows. Toward the north of the site stands a large broad-leaved woodland referred to as High Wood, a (non-statutory) Local Wildlife Site (LWS) and Ancient Replanted Woodland (PAWS), with further woodland copses and plantation woodland in abundance sporadically across the site. Woodland cover encircling The Bog, referred to as The Spinney, is identified as a Priority Habitat Inventory - Deciduous Woodland (England), more information on this has been discussed under sub-heading **Non-statutory Considerations**.
- 1.7 As a result of the historic management of the land within the confines of the site, primarily used for the production of arable crops and general agricultural practices, much of the observed tree cover was confined to the principle boundaries or stood amongst internal hedgerows sub-dividing field parcels.

- 1.8 The individually assessed trees were largely confined to native broadleaved species, namely large, mature examples of English, turkey and sessile oaks *Quercus robur*, *cerris* and *petraea*, ash *Fraxinus excelsior* and occasional non-native sycamore *Acer pseudoplatanus*, whilst many of the groups of trees recorded offered the site some greater species diversity, including a number of more ornamental varieties including that of red oak *Quercus rubra*, Swedish whitebeam *Sorbus intermedia* and wild cherry *Prunus avium*. Although limited in abundance, coniferous species, wellingtonia and larch (*Sequoiadendron giganteum* and *Larix decidua*) were also noted, along with broadly established planted rows of Leyland cypress *Cupressocyparis leylandii*.

Planning Policy

National Planning Policy Framework 2019

- 1.9 National Planning Policy is defined by the National Planning Policy Framework (NPPF)¹. This sets out the Government's most current and up to date planning policies for England and how these should be applied. The current NPPF is dated February 2019.
- 1.10 The NPPF states that there is a '*presumption in favour of sustainable development*' and states that for decision making, the LPA should be '*c) approving development proposals that accord with an up-to-date development plan without delay*'.
- 1.11 In relation to arboriculture, the NPPF states that:
- *175(c) 'development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists';*
and provides specific guidance that:
 - *175(d) 'development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity'.*
- 1.12 Examples of what is deemed to be '*wholly exceptional*' are included within Footnote 58 and provides the examples of '*infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat*'.
- 1.13 High Wood has been identified as an Ancient Replanted Woodland. Further discussion has been provided below.

¹ Ministry of Housing, Communities and Local Government. (2018). *National Planning Policy Framework*. [Online]. London: Ministry of housing Communities and Local Government. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/740441/National_Planning_Policy_Framework_web_accessible_version.pdf [Accessed 29/01/2018]

Local Planning Policies

1.14 There are a number of emerging policies in the Brentwood Borough Council Local Plan Draft dated October 2018² aimed to help maintain the Borough's natural environment. Those that are considered pertinent to the subject site include:

- Policy BE37 - Access to Nature, which states "Access to nature should be integrated as a fundamental part of site and buildings design. Development, including conversion of existing buildings, will be supported if they:
 - a. *Major development should provide direct access to nature by measures such as buildings design and orientation, high-quality landscaping, planting, green roofs, green walls, nature-based sustainable drainage and/or non-motorised access to the countryside;*
 - b. *These measures should be protected, planned, designed and managed as integrated features of Green and Blue Infrastructure;*
 - c. *Development in areas that are more than 1km walking distance from an accessible green open space should seek opportunities to improve residents' experience and interaction with nature by means of design and/or greening interventions."*
- Policy NE01 – Protecting and Enhancing the Natural Environment, which states that "Proposals will be supported which minimise the use of natural resources and proactively protect and enhance the quality of the natural environment according to their international, national and local significance, aiming to achieve:
 - a. *ecological connections between significant sites through multi-functional green and blue infrastructure provision;*
 - b. *biodiversity net-gain across all green infrastructure;*
 - c. *ecological and ecosystem restoration; and*
 - d. *habitat and species protection and enhancement (both statutory and non-statutory, including priority habitats and species) of international, national and local importance commensurate with their status.*

Proposals will not be permitted if potential impacts will lead to the deterioration or loss, either direct or indirect, of the borough's natural designated and non-designated heritage assets, including Biodiversity, Geodiversity, Landscape Character and any other aspect of ecological potential, priority habitats and/or species, water cycle, green wedges, ancient woodlands and landscapes.

Development should avoid adverse impact on existing natural heritage assets as a first principle and enable net gains by designing in landscape and biodiversity features and enhancements. Where adverse impacts are unavoidable, they must be adequately and proportionately mitigated in accordance with their international, national and local significance. Proposals must demonstrate how they have taken all necessary steps of avoidance, minimisation and then mitigation; if insufficient to fully address adverse impacts, consideration will be given to compensation measures. Following this process, a proposal will only be supported subject to a hierarchy where:

² Brentwood Borough Council, Brentwood Local Plan Pre-Submission (Publication Draft) Regulation 19 October 2018

a. a site of international importance, being a special area of conservation (SAC), special protection area (SPA) or Ramsar site would be affected there has to be exceptional overriding reasons of human health, public safety or environmental benefit; impact on these international (European) sites will also be subject to Policy NE02.

b. a site of national importance, such as a site of special scientific interest (SSSI) or national nature reserve (NNR) would be affected there has to be exceptional circumstances where the need for, and the benefits of, the proposal significantly outweigh both the potential impacts on the features of the site that make it of national importance and any broader impacts on the national and regional network of such sites; and

c. a site of local importance such as Local Wildlife Sites (LWS), a protected species, a priority habitat or species, a site of local or regional importance, the achievement of water body good ecological potential, or the biodiversity value of the proposed development site as part of the wider network would be affected, the need for and the benefits of the proposal must clearly outweigh the assessed impacts.

Proposals will be required to demonstrate that all potential adverse impacts on natural heritage assets are accompanied by an appropriate appraisal, investigating all individual and cumulative potential impacts and demonstrate what measures are to take place to avoid adverse impacts.

Where appropriate development proposals will be required to be accompanied by:

c. an arboricultural assessment detailing the measures to protect and/or justification for the removal of any trees or hedgerows during onsite construction;

- Policy NE03 – Trees, Woodlands, Hedgerows, which states “Development will not be permitted where it would have a detrimental effect on, or result in the loss of, significant landscape heritage or a feature of ecological importance, including trees, woodlands or hedgerows.

A development proposal will only be supported where it seeks to conserve and enhance any existing tree, woodland, hedge and/or hedgerow of value that would be affected by the proposed development.

Where potential adverse impacts on trees, woodland, hedges and hedgerows is unavoidable, a proposal must demonstrate that the impact has been investigated. Where investigations show that such adverse impacts are possible a statement will be required that:

a. assesses all trees, woodland, hedges and/or hedgerows that would be affected by the proposal, describing and assessing their value;

b. sets out how the details of the proposal have been decided upon in terms of their impact on the value of trees, woodland, hedges and hedgerows and how adverse impacts will be avoided as far as possible, or if unavoidable how they will be minimised as far as possible.

The loss, threat or damage to any tree, woodland, hedge and/or hedgerow of visual, heritage or nature conservation value will only be acceptable where:

a. it is addressed firstly by seeking to avoid the impact, then to minimise the impact and finally where appropriate to include mitigation measures; or

b. there are sound arboricultural reasons to support the proposal.

Where impacts remain the need for, and benefits of, the development in that location must clearly outweigh the loss, threat or damage.

Where loss, threat or damage cannot be fully addressed through minimisation and/or mitigation measures the proposal may be supported if alternative measures such as reinstatement of features, additional landscaping, habitat creation or tree planting that will compensate for the harm and can be implemented and established before development starts.

Proposals for major scale development will be required to include additional new trees to form part of the landscaping for the proposal, the form of which will be determined by negotiation.

Trees or groups of trees subject to Tree Preservation Order protection will be protected from damage or removal, including their root protection zone”

- 1.15 High Wood LWS and ancient woodland is within the site's boundary. Although signs indicate that High Wood is a private woodland, it is easily accessible from both Ongar Road and from the adjacent Larkin's Playing Field, and is heavily used by the general public having wide well-worn paths throughout, some invasive species and signs of vandalism.

Statutory Considerations

- 1.16 Local authorities have a Duty under the Town and Country Planning Act to create Tree Preservation Orders (TPO) in order to protect and preserve specific trees and woodlands that bring significant amenity benefit to a particular site or location. Under a TPO it is a criminal offence to cut down, top, lop, uproot or willfully destroy a tree protected by that Order, or to cause or permit such actions, if carried out without the prior written consent of the acting LPA. Anyone found guilty of such an offence is liable and in serious cases, may result in prosecution and incur an unlimited fine.
- 1.17 The presence of any Tree Preservation Orders that may affect the site has yet to be confirmed by Brentwood Borough Council. Once this information has been received, the report will be updated accordingly. Before any tree works are undertaken confirmation of the presence of the statutory constraints should be sought from the Local Authority.
- 1.18 No direct consultation with the Local Planning Authority has taken place, however, it is understood having used the online search facility on the website for the Local Planning Authority, Brentwood Borough Council, that the site does not lie within a Conservation Area however, Weald Park Conservation Area is situated in close proximity, abutting the eastern edge of Sandpit Lane. Before any tree works are undertaken confirmation of the online information should be sought from the Local Authority.

Non-Statutory Considerations

- 1.19 In order to compile existing baseline information on relevant arboricultural considerations, information was requested from both statutory and non-statutory nature conservation organisations. The Multi-Agency Government Information for the Countryside (MAGIC)⁴ website highlighted tree cover within the site designated as or included within the following:
- Priority Habitat Inventory - Deciduous Woodland (England) – High Wood and The Spinney
 - Ancient Replanted Woodland (also referred to as Planted Ancient Woodland (PAWS) – High Wood
- 1.20 According to the Brentwood Borough Local Wildlife Site Review⁵ High Wood LWS meets the criteria as an LWS as both an ancient woodland site and as a lowland mixed deciduous woodland on non-ancient site. It also qualifies as an Essex BAP habitat.
- 1.21 High Wood is a designated Ancient Replanted Woodland (*Plantations on ancient woodland sites (PAWS) – areas of ancient woodland where the former native tree cover has been felled and replaced by planted trees, usually with species not native to the site⁶*) and is therefore afforded greater protection as outlined by the NPPF.
- 1.22 The Priority Habitat Inventory is a spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance⁷.
- 1.23 Crucially, Priority Habitat designation does not provide any statutory protection.
- 1.24 Beyond the site, to the west, the Weald Park Country Park is defined as a ‘Woodpasture and Parkland BAP Priority Habitat (England)’ and Local Wildlife Site (LWS). The Country Park comprises Ancient woodland sites, lowland mixed deciduous woodland on non-ancient sites, wood-pasture and parkland, habitat extension mosaics, accessible natural greenspace.

2.0 SURVEY METHODOLOGY

- 2.1 The survey of trees has been carried out in accordance with the criteria set out in Chapter 4 of BS5837. The survey has been undertaken by a suitably qualified and experienced arboriculturalist and has recorded information relating to all those trees within the site and those adjacent to the site which may be of influence to any proposals. Trees were assessed for their arboricultural quality and benefits within the context of the proposed development in a transparent, understandable and systematic way.
- 2.2 Trees have been assessed as groups or hedgerows where it has been determined appropriate. The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture.
- 2.3 For the purposes of this assessment, a hedgerow is described as any boundary line of trees or shrubs less than 5m wide at the base and are managed under a regular pruning regime.

⁴ <http://magic.defra.gov.uk/>

⁵ Essex Ecology Services Ltd. EECOS Brentwood Borough Local Wildlife Site Review 2012 4th December 2012

⁶ Planning for Ancient Woodland Planners’ Manual for Ancient Woodland and Veteran Trees October 2017, Woodland Trust

⁷ Contains public sector information licensed under the Open Government Licence v3.0.

A tree survey in accordance with BS5837 does not assess hedgerows against the Hedgerow Regulations 1997 or specifically from an ecological perspective, and is outside the scope of this assessment.

- 2.4 An assessment of individual trees within groups or hedgerows has been made where a clear need to differentiate between them, for example, in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

Veteran Trees

- 2.5 Veteran trees and Ancient Woodland are important components of the landscape, their importance can be for a number of reasons including that of their ecological, social, cultural and historic value. Veteran Trees and Ancient Woodlands are material considerations within the planning process and their importance is specifically recognised within the National Planning Policy Framework 2019.
- 2.6 Ten of the assessed trees were considered as veteran trees with a further individual (T42) classified as a Transitional / Future Veteran Candidate in accordance with accepted methodologies and guidance. Further details have been provided in Section 3.0 and Appendix C – Veteran Tree Schedule.
- 2.7 This assessment, and the criteria for identification of attributable veteran features, was based on currently available industry guidance and resources including the Level 2 and 3 of the *Specialist Survey Methodology (SSM)* and as detailed within *Ancient and other Veteran Trees: Further Guidance on Management (Lonsdale, D (ed.) (2013). The Tree Council & Ancient Tree Forum.*
- 2.8 For the purpose of affording these trees greater protection the RPA calculation has been calculated in accordance with the guidelines detailed within *Ancient and other Veteran Trees: Further Guidance on Management (Lonsdale, D (ed.) (2013). The Tree Council & Ancient Tree Forum.* The RPA is defined as a distance equal to 15 times the trees stem diameter, or five metres beyond the canopy, whichever is the greater (Read, 2000).
- 2.9 Where this assessment has identified veteran trees, further survey work of those trees and their communities will be required. From an ecological perspective veteran trees provide a rare and specialist niche habitat and therefore preservation of this habitat is considered highly important. Veteran trees and many of their associated specialised species are becoming increasingly rare within the landscape and therefore some veteran tree landscapes and their associated species are now protected, both nationally and Europe wide through the Natura 2000 Directive.

Ancient Woodland

- 2.10 Ancient woodland in England is defined as an area that has been continuously wooded since at least 1600 AD. 'Continuously wooded' does not require there to have been a continuous cover of trees and shrubs across the entire area. Habitats such as glades, deer lawns, rides, ponds and streams, as well as gaps created by natural occurrences, and forestry may all occur within woodland.
- 2.11 Ancient woodland includes both ancient semi-natural woodland and plantations on ancient woodland sites:

- Ancient semi-natural woodland (ASNW) is where the stands are composed predominantly of trees and shrubs native to the site that do not obviously originate from planting. However, woodlands with small planting of trees native to the site would still be included in this category. The stands may have been managed by coppicing or pollarding or the tree and shrub layer may have grown up by natural regeneration.
- Plantations on ancient woodland sites (PAWS) these are areas of ancient woodland where the former native tree cover has been felled and replaced by planted trees, predominantly of species not native to the site. These sites often retain some of the ancient woodland features such as soils, ground flora, fungi and woodland archaeology.

2.12 Ancient woodland is a resource of great importance for its wildlife, soils, recreation, cultural value, history and the contribution to diverse landscapes.

BS5837 Categories

2.13 Trees have been divided into one of four categories based on Table 1 of BS5837, '*Cascade chart for tree quality assessment*'. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below).

2.14 Category U trees are those which would be lost in the short term for reasons connected with their physiology or structural condition. They are, for this reason not considered in the planning process on arboricultural grounds. Categories A, B and C are applied to trees that should be of material considerations in the development process. Each category also having one of three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural or conservation values accordingly.

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

- Trees that have a serious irremediable structural defect such that their early loss is expected due to collapse and includes trees that will become unviable after removal of other category U trees.
- Trees that are dead or are showing signs of significant, immediate or irreversible overall decline.
- Trees that are infected with pathogens of significance to the health and/ or safety of other nearby trees or are very low-quality trees suppressing adjacent trees of better quality.
- Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.

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

- Sub category (i) trees that are particularly good examples of their species, especially if rare or unusual, or are essential components of groups such as formal or semi-formal arboricultural features for example the dominant and/or principal trees within an avenue.

- Sub category (ii) trees, groups or woodlands of particular visual importance as arboricultural and / or landscape features.
 - Sub category (iii) trees, groups or woodlands of significant conservation, historical, commemorative or other value for example veteran or wood pasture.
- 2.17 **Category (B) – (Blue):** Trees that are considered for retention and are of moderate quality with an estimated remaining life expectancy of at least 20 years with potential to make a significant contribution. Such trees may comprise:
- Sub category (i) trees that might be included in category A but are downgraded because of impaired condition for example the presence of significant though remediable defects, including unsympathetic past management and storm damage.
 - Sub category (ii) trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.
 - Sub category (iii) trees with material conservation or other cultural value.
- 2.18 **Category (C) – (Grey):** Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:
- Sub category (i) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
 - Sub category (ii) trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value or trees offering low or only temporary / transient screening benefits.
 - Sub category (iii) trees with no material conservation or other cultural value.

Tree Schedule

- 2.19 Appendix A presents details of any individual trees, groups, hedgerows and woodlands found during the assessment including heights, diameters at breast height, crown spread (given as a radial measurement from the stem), age class, comments as to the overall condition at the time of inspection, BS5837 category of quality and suitability for retention and the root protection area.
- 2.20 The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture.
- 2.21 Hedgerows are identified as a Habitat of Principle Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The tree survey conducted, in accordance with BS5837, does not assess hedgerows against the Hedgerow Regulations 1997 or specifically from an ecological perspective, and is outside the scope of this assessment.
- 2.22 For the purposes of this assessment, a hedgerow is described as any boundary line of trees or shrubs less than 5m wide at the base and are managed under a regular pruning regime. Hedgerows and substantial internal or boundary hedges (including evergreen screens) have been recorded including lateral spread, height and stem diameter(s). Where trees are present

within a hedgerow that are significantly different in character from the remainder, these have been identified and recorded separately.

- 2.23 For the purposes of this assessment woodland is described as a habitat where *'trees are the dominant plant form. The individual tree canopies generally overlap and interlink, often forming a more or less continuous canopy'*⁸.
- 2.24 Woodlands however, are not just formed of trees and generally include a great variety of other plants. These will *include 'mosses, ferns and lichens, as well as small flowering herbs, grasses and shrubs'*⁹.
- 2.25 General observations particularly of structural and physiological condition for example the presence of any decay and physical defect and preliminary management recommendations have also been recorded where appropriate.

Supplied Site Plans

- 2.26 The supplied Tree Survey Plan (drwg.no. 8363-T-01) shows the trees assessed on site and their arboricultural qualities in accordance with the methodology defined in BS5837 and Appendix A - Tree Schedule, presents the details, physiological and structural conditions of the individual trees, groups, hedgerows and woodlands found during the assessment.
- 2.27 The Tree Schedule provides details on tree heights, stem diameter at 1.5m, crown spread, age class, overall condition at the time of inspection, the assigned BS5837 category and the calculated root protection areas (RPA). General observations, particularly of structural and physiological condition; for example, the presence of any inhibiting pathogenic decay fungi or irremediable physical defect, have also been recorded where appropriate.
- 2.28 As part of this summary, a Tree Retention Plan has been prepared to show the proposed layout, as outlined by the Capacity Plan (drwg.no. 8363-L-01 Rev E - FPCR 2019) in relation to the existing tree cover allowing an assessment of any potential conflicts. The plan also identifies, provisionally, which trees would be required to be removed or retained as part of the currently proposed development whilst Section 4.0 of this assessment provides discussion and recommendations on how to better ensure the retention of further trees, where feasible, through advising on the existing concepts the design principles and objectives.

Tree Constraints and Root Protection Areas

- 2.29 Below ground constraints to future development are represented by the area surrounding the tree containing sufficient rooting volume for the specimen to have the best chance of survival in the long term which is identified as the root protection area (RPA). The RPA has been calculated in accordance with section 4.6 of BS5837 and requires suitable protection in order for the tree to be successfully incorporated into any future scheme.
- 2.30 Where applicable the shape of the Root Protection Area has been modified to consider the presence of any nearby obstacles (existing or past) which may have restricted root growth and the likely root distribution i.e. the presence of hard standing, structures and underground apparatus.

⁸ http://www.countrysideinfo.co.uk/woodland_manage/whatis.html

⁹ http://www.countrysideinfo.co.uk/woodland_manage/whatis.html

- 2.31 Where groups of trees have been assessed, the Root Protection Area has been shown based on the maximum sized tree in any one group and so may exceed the Root Protection Area required for some of the individual specimens within the group. Further detailed inspection of the individual trees forming a group may be required where development impacts upon the group.
- 2.32 Above ground constraints such as the current crown spread of the trees and an illustration of the shade pattern (where appropriate) have been considered and identified within the Tree Survey Plan and Tree Retention Plan indicates their potential area of shading influence.

Considerations and Limitations of the Tree Survey

- 2.33 The survey was completed from ground level only and from within the boundary of the site. Aerial tree inspections or an assessment of the internal condition of the stem/s or branches were not undertaken at this stage as this level of survey is beyond the scope of the initial assessment.
- 2.34 The statements made in this report regarding defects in assessed trees does not take into account the effects of extreme / adverse weather conditions, changes in land use, unforeseen accidents or anti-social behaviors, such as vandalism, which occur since the date of the survey. As such, the assessment of tree condition given within applies to the date of survey and cannot be assumed to remain unchanged.
- 2.35 It will be necessary to review all comments and observations made within this report, in accordance with sound arboricultural practice, within two years of the date of survey (unless explicitly stated elsewhere within this report). Further review may also be necessary where site conditions change or works to trees are carried out which have not been specified in detail within this report.
- 2.36 It may be necessary during detailed design to undertake further assessment and accurate positioning of woody species within tree groups to assist structural calculations for foundation design of structures in accordance with current building regulations. Knowledge of soil type was not known at the time of this tree assessment. If a current soil survey of the site has taken place then it must be read in conjunction with the results of the tree survey.
- 2.37 The exact position of individual trees or species included as part of a tree group should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths in accordance with NHBC Chapter 4.2 Building near Trees.

3.0 BASELINE RESULTS AND TREE CONDITION

- 3.1 The study area comprises seven arable field compartments separated by mature and established mix species hedgerows. The towns of Brentwood and Pilgrims Hatch are located to the south-east, north and north-east of the site respectively. Weald Road forms the southern site boundary, the eastern boundary is formed by the main arterial road - A12 and its associated buffer planting; fields and buildings associated with Calcott Hall Farm; and the Larkins playing field. Bisecting the site from the adjoining Weald Park Country Park and its distinctive wood pasture and parkland to the west, Sandpit Lane forms the western boundary.
- 3.2 The historic arable use of the land had restricted tree cover to the field boundaries. Maintained hedgerows formed a number of these field boundaries, with these hedgerows containing occasional mature tree specimens.



PPhotograph 1: View looking north toward A128 from T13 and T14



Photograph 2: View looking south west toward Sandpit Lane from T26

- 3.3 Of the forty-three individual trees, twenty eight groups of trees, four hedgerows and two woodlands surveyed, a large majority were considered to offer a moderate (category B) to high quality (category A) value, with seventeen individual trees considered to offer an estimated remaining life expectancy of at least 40 years or, in the context of the ten trees classified as being veteran (discussed further below), were considered as category A(iii) owing to their significant value.
- 3.4 Two individual trees, namely T26 and T28, were considered to be unsuitable for retention irrespective of any future development of the site. Whilst T26's retention as a valuable ecological resource may be possible following remediable management, reducing to a standing dead 'monolith', T28 should be removed to negate the risk of injury or harm to persons using the main road, to which this tree is situated within falling distance of. At the time of assessment, T28, a 10m high English oak, was devoid of any live crown growth and appeared, by the extent of degraded heartwood visible following delamination of cambium about the now skeleton scaffold of the tree, to have been dead / largely dysfunctional for some time.
- 3.5 It would be recommended that T28 is felled, retaining as much of the dead wood resource available in as great a length as possible, for relocation into the ancient wood (High Wood) positioned to the east.

- 3.6 Whilst grouped tree cover was largely confined to previously managed hedgerows which, due to a lapse in more formal hedgerow management e.g. hedgelaying, comprised trees which has established much broader forms; forming crowns independent of one and other, leading to greater visual prominence from within the curtilage of the site, several small copses (G17, G18, G21) and an evergreen plantation (G19) were also present.



Photograph 3 & 4: Norway / Nordmann fir Plantation (G19) and view from north overlooking G19

- 3.7 G19, a group of uniformly planted Norway spruce *Picea abies* and Nordmann fir *Abies nordmanniana*, resided within a single field compartment in the centre of the site. Considered to be c. 20-30 years in age and planted as a commercial crop for intended cultivation as Christmas trees, this area of the site was devoid of any significant tree cover.

Category A – High Quality Trees

- 3.8 A total of seventeen trees were recorded as offering a high arboricultural quality, namely trees T4, T8, T10, T11, T16, T18, T20, T24, T29, T30, T31, T33, T38, T39, T40, T41 and T42.
- 3.9 With the exception of T11, a veteran ash *Fraxinus excelsior*, the remaining sixteen category A trees were limited to the oak genus *Quercus sp.* of which a further nine trees were considered to be of high cultural, historical and ecological value (category Aiii) possessing a number of characteristic features associated with ancient and veteran trees. Refer to Appendix B – Veteran Tree Schedule to see those trees identified and further details on identified features.

Veteran and Transitional / Future Candidate Veteran Trees

- 3.10 As with the majority of trees considered to be veteran, each of the nine trees possessed a number of attributable features, as identified in *Ancient and other Veteran Trees: Further Guidance on Management* (Lonsdale, D (ed.) (2013), namely large stem diameters for their species, major stem cavities / hollowing (T10, T31, and T33), decay holes (T10, T11, T16, T24, T29, T30 and T38), epicormic growth visible at varying degrees of life stage in each tree, fungi and epiphytes (T24, T10, T11 and T16) and a prominent position in the landscape or an 'old' look or aesthetic value. Each of the nine trees also housed quantities of dead wood of varying proportions, with several large proportioned (>75mm diameter) dead branches noted.

- 3.11 A number of the recorded veteran trees possessed a pollarded form. Pollarding is a form of historic management whereby the crown framework, including the apical and lateral branches of a trees crown, are removed to a pre-defined point, usually the crown break, to encourage multi-stemmed branching from that point. This type of management is often commonly associated with veteran oak trees and provides a cultural link to medieval times and earlier (Rackham 1986).
- 3.12 As a result of the stem measurements exceeding that which is required of ash and English oak trees eligibility as veteran and the number of attributable veteran features recorded, these trees have been considered veteran and as such have been afforded a larger RPA, a distance equal to 15 times the trees stem diameter, or five metres beyond the canopy, whichever is the greater (Read, 2000).
- 3.13 In this instance the assessment was only considered as part of the initial BS5837 the classification of these trees as veteran will need to be formerly decided following a more detailed Veteran Tree Assessment. At this stage both tree specimens will be adequately safeguarded.
- 3.14 The high frequency of veteran oak trees recorded is not unexpected given the context of the site, situated directly adjacent to an area of wood pasture / parkland – Weald Park Country Park, a 700-year-old¹⁰, 500-acre Country Park. A large majority of the UK's veteran tree population is recorded within or closely associated to stately homes and 'designed' landscapes. Weald Manor, now only visible in remnant form since being demolished in the 1950's, was constructed in the 16th Century and from 1732 to 1745 was, as were many of the designed landscapes created in the 18th and 19th centuries, artificially landscaped in the naturalistic manner by Capability Brown. An important component of Capability Brown's landscape designs were wood pasture and parkland forms (Bullock et al. 2004; Cookson & Tickner 2013).

Woodlands

- 3.15 Two woodland compartments were located within the site (W1 and W2) including W1 - High Wood (LWS) designated Ancient Replanted Woodland and discussed below.
- 3.16 W2 encompassed a large series of waterbodies as well as connecting ditches linking these waterbodies together. This habitat supported a high woody diversity comprising semi-mature and mature native species including pedunculate oak, beech, cherry, silver birch and Scots pine, with further alder *Alnus glutinosa* and willow *Salix* sp. associated with the waterbody banks. The understorey was composed of sporadic areas of scrub and shrubs including bramble, holly, elder, and yew *Taxus baccata* tree saplings.
- 3.17 Ground flora composition varied throughout the woodland with stands of bracken present as well as rare to occasional distributions of species such as foxglove, red campion *Silene dioica*, cuckoopint *Arum maculatum*, wood dock and false brome.

Ancient Replanted Woodland

- 3.18 The Multi-Agency Government Information for the Countryside (MAGIC) defines W1 – High Wood as an 'Ancient Replanted Woodland', also referred to as a Planted Ancient Woodland (PAWS). W1's composition was distinctly defined, with the east and west broadly dissimilar.

¹⁰ The manor of Weald descended in the barony of Valognes until the 13th century, when the barony was divided among coheirs. ('North Weald Bassett: Manors', A History of the County of Essex: Volume 4: Ongar Hundred (1956), pp. 286-290 Accessed: February 2019).

- 3.19 The eastern extent of the woodland comprised a number of mature native trees, with high canopy cover provided along the northern edge of the woodland by predominantly English oak *Quercus robur*, with stored coppice hornbeam *Carpinus betulus* now abundant as a secondary / understory woodland layer due to a lapse in management. Stored coppice is the result of a lapse in coppice management, a traditional woodland management technique which is carried out by periodically cutting back the growth of a tree (stems) to ground level to stimulate growth to provide firewood or timber. This was carried out on cyclical rotations.

Areas of the woodland would have been selectively harvested on a rotation of up to 30 years. Almost all of the coppiced hornbeams present would be classified as neglected or stored coppice, having not been cut for a number of years.

- 3.20 Concentrated to the western half of the woodland, sweet chestnut *Castanea sativa*, Scots pine and silver and downy birch *Betula pendula and pubescens*, were the dominant species. These trees are likely to have been planted within the woodland and are likely the reason for the woodlands classification. The understory was composed of sparse shrubs and scrub vegetation including holly, hazel *Corylus avellana*, rowan *Sorbus aucuparia* and elder, whilst non-native species cherry laurel *Prunus laurocerasus* and a *Rhododendron* sp. were also recorded. The woodland was interspersed with a network of informal tracks which link to the adjacent, off-site, Larkin's playing field and Ongar Road.

4.0 KEY OPPORTUNITIES AND CONSTRAINTS

- 4.1 In order to better inform the future design of any development proposals, the key opportunities and constraints have been outlined below. It is considered that the most prevalent constraints to the development are as follows:

Key Constraints

- a) Consideration of the safe and long-term integration of the higher quality – category A trees as a key component of the development;
- b) The retention, protection and preservation of both the veteran tree population and the ancient woodland, integrating them into the development and allowing for future management;
- c) Provision of appropriate compensation measures for the removal of a single veteran tree (T29) to facilitate the northern access;
- d) Whilst removals are to be kept to a minimum, provision of appropriate mitigation to offset the loss of tree cover shall need to be allowed for, '*Where adverse impacts are unavoidable, they must be adequately and proportionately mitigated in accordance with their international, national and local significance.*' - Policy NE01 – Protecting and Enhancing the Natural Environment

Key Opportunities

- e) Retention of a large majority of the existing tree population and the securing of new tree planting, through investment delivered by the development, which would be of benefit to the landscape, enhancing and the arboricultural resource and ensuring a succession of tree cover for the future;
- f) Investment in the future management of both the veteran tree population and the ancient woodland;
- g) Safeguarding and enhancement of rare and niche habitats provided by the veteran trees and ancient woodlands;
- h) Increasing public accessibility to a well-treed site, creating additional areas of recreation within an urban environment.

Key Constraintsa) Consideration of Category A Trees

- 4.2 Where possible, given that the initial design concept has been constraint led, being sympathetic to the established intrinsic arboricultural, ecological and landscape resource, the loss of tree cover shall be kept to a minimum. Perhaps most importantly, the retention of higher quality trees, including the veteran tree population recorded across the site shall feature as an integral component of the design's principles.
- 4.3 Within the context of the initial concept design of the proposed development (refer to Tree Retention Plan), the majority of the assessed trees, groups of trees and woodlands around the site are to be retained. However, certain tree losses cannot entirely be avoided given the perceived change of land use and the need to accommodate a feasible developable layout.
- 4.4 At present, only one of the category A trees shall be removed, namely T29 assessed as an A(iii) for its veteran status. This removal shall be necessary to afford an appropriate Primary Access (roundabout or priority junction) in this area of the site. Following technical input and advice from the appointed highway's engineers, the design of the access and proposed roundabout junction cannot be modified to allow for the retention of this tree and as such, appropriate compensatory measures (discussed below) shall be provided.

b) Retention, protection and preservation of both the veteran tree population and the ancient woodland, allowing for future management:

- 4.5 With the exception of T29 to allow for the Primary Access, all of those trees identified as veteran shall be retained and incorporated into the proposed scheme.

Ancient Woodland and Veteran Trees are specifically mentioned within the National Planning Policy Framework 2019 as "irreplaceable habitat which should be conserved and enhanced". Both veteran trees and ancient woodland are a key principal of preserving the Borough's natural environment as set out in the Brentwood Borough Council Local Plan Draft dated October 2018 – *'A development proposal will only be supported where it seeks to conserve and enhance any existing tree, woodland, hedge and/or hedgerow of value that would be affected by the proposed development.'*

Where potential adverse impacts on trees, woodland, hedges and hedgerows is unavoidable, a proposal must demonstrate that the impact has been investigated'.

- 4.6 For the purpose of affording Veteran Trees greater protection their RPA have been calculated in accordance with the guidelines detailed within Ancient and other Veteran Trees: Further Guidance on Management (Lonsdale, D (ed.) (2013). The Tree Council & Ancient Tree Forum. This guidance recommends the RPA is calculated at a distance 'equal to 15 times the trees stem diameter, or five metres beyond the canopy, whichever is the greater' (Read, 2000). The Veteran Tree Root Protection Area has been identified on the Tree Survey Plan.
- 4.7 The area of ground within the increased RPA's of all of veteran trees should be retained as it currently exists through restricting any earthworks, siting of road layouts, built structures or pedestrian / cycle routes beyond the RPA of the trees and thus ensuring preservation of the existing soil composition and structure, topography, micro-habitats, species assemblages, and mycorrhiza fungal associations contained within these areas.
- 4.8 At present, a number of conflicts exist between the schemes design and the RPA's of several veteran trees. Notably, the placement of either Developable Land Parcels or Potential Circulation Routes are shown to encroach within the RPA's of trees T10, T16 and T33. In some instances, the level of encroachment would be considered significant and further review, during more detailed designs of the scheme, should look to avoid these RPA's, allowing for adequate buffering between main roads and developable areas.
- 4.9 Furthermore, any proposed development of the site should consider these important arboricultural features and should designs layouts accordingly, retaining them within areas of open space to provide a means of buffering whilst minimising the risk these trees present to the built element or members of the public frequenting the site post development. Veteran trees inherently, by their very definition, support an abundance of dead and dying branches or varying proportions or possess structural compromised stems, often hollowing and progressively decaying to such an extent that the risk of collapse / failure of the tree is heightened.
- 4.10 Whilst these features are integral to the quality of a veteran tree's saproxylic habitat, these potentially hazardous features do not lend well to retention within what may in the future be a residential environment. As such, the design of the scheme shall need to ensure that these trees are retained and incorporated into areas of incidental open space. Whilst this would not only help to negate the risk of the developable area impacting on the rooting areas of these trees, it would also help to manage any risk posed from structural failure of any part of the tree to the proposed residential plots.
- 4.11 Retaining large, mature and prominent trees in a setting such as open space, a space intended for recreational use post development, encourages people, especially children and young adults, to interact with trees, encouraging climbing, the building of dens and shelters or utilising the shady space beneath the trees crown in summer months for relaxing.
- 4.12 Whilst it is encouraged that the areas of open space are used for their intended purpose and the retention of these trees should not discourage this type of social and recreational behaviour, a balance has to be provided between safeguarding these niche habitats appropriately.

After all, at the other end of the spectrum; in minor instances it must be stated, anti-social behaviour can also be encouraged, including vandalism; in particular fires and the snapping of low hanging limbs etc.

- 4.13 As such, in order to afford these trees greater protection, it would be recommended that certain measures to try and discourage utilising the open space encroached by the RPA's of each of the trees are considered. In this instance, encircling the RPA's with permanent fencing (post and rail etc.) to prevent the RPA's being compacted or damaged would, aesthetically speaking, be too intrusive. As such, it is recommended that the RPA's are sown with a wildflower mix (EM2 – STANDARD GENERAL-PURPOSE MEADOW MIXTURE) comprising species such as common knapweed, bird's foot trefoil, selfheal, Oxeye daisy, and red clover, all of which can establish rapidly.
- 4.14 Once left to establish, the meadow shall deter people from sitting or playing amongst the trees, reducing the risk of injury or harm to members of the public, whilst also providing a wealth of benefits to insects and other invertebrates (including butterflies, bee, birds and mammals).
- 4.15 It is also important that no pruning work is carried out at this point in time until a further more detailed assessment is undertaken. This assessment shall help determine the eligibility of the trees classified as Veteran and will help to better inform appropriate future management. The management plan will need to factor public safety as part of its recommendations.
- 4.16 The investment delivered by the proposed development provides this opportunity, securing future management for these rare and niche habitats which would otherwise, without investment of this scale, likely be left in an unmanaged state and, as such, shall be potentially lost from the landscape within the foreseeable future. The preservation of these veteran trees and their habitat should be considered highly important and a key opportunity of the development.
- 4.17 As with the ancient woodland, according to the Brentwood Borough Local Wildlife Site Review¹² High Wood LWS meets the criteria as an LWS as both an ancient woodland site and as a lowland mixed deciduous woodland on non-ancient site. The wood is described as being ancient in its main body with more recent woodland at its eastern end and adjacent to the residential houses.
- 4.18 The proposals seek to retain Hall Wood LWS in its entirety, and buffer it from development.
- 4.19 A buffer strip of new planting, measuring a width of at least 15m, in accordance with Standing Advice, will be provided between the LWS and the development, and this in turn, will link to further areas of green space within the development. The 15m buffer has been calculated in the absence of a detailed topographical survey and the precise buffer (RPA) shown shall be subject to a review once this survey information is provided.
- 4.20 The current concept of the scheme demonstrates that a Potential Circulation Route shall pass within the 15m buffer provided to the ancient woodland, to the west of the woodland; emergency access to the east, as well as the northern extent of the developable area to the south of the woodland.

¹² Essex Ecology Services Ltd. EECOS Brentwood Borough Local Wildlife Site Review 2012 4th December 2012

- 4.21 The development should be designed to avoid the loss or detrimental impact on ancient woodland. Government policy on ancient woodland including the NPPF 2019 and Keepers of Time: a statement of policy for England's ancient and native woodland – February 2019) states '*The existing area of ancient woodland should be maintained*'. The ancient woodland shall be retained as part of the proposals and closer consideration between the built elements of the scheme shall be necessary at the detailed design stages.
- 4.22 A long-term management plan will be implemented which will be designed to enhance the woodland with prescriptions such as invasive species removal, resumption of coppicing, deer control (if necessary), and rerouting pathways to avoid more sensitive areas, being put in place.
- 4.23 It is considered that if the development was to progress, the woodland could be brought under a management regime that would be advantageous to its status. Rather than being of detriment to the LWS it is considered that providing there is a commitment to provide appropriate management and involve the local community, the woodland will benefit from the proposed adjacent development.

c) Provision of appropriate compensation measures for the removal of a single veteran tree (T29) to facilitate the access;

- 4.24 As mentioned above, the removal of T29 to facilitate the Primary Access is considered to be a significant arboricultural impact and poses a significant constraint to the development. However, it should be highlighted that the currently proposed access in this area appears to be the only feasible and practical option, with all over boundaries offering limited suitability for a suitable engineered access. The western boundary, Sandpit Lane, is a narrow, almost single-track lane which, in order to accommodate increased traffic post development, would require significant alterations; including road widening and the installation of pedestrian footpaths. This in turn would have a greater affect on the number of trees to be removed and would be considered to of greater detriment to the sites arboricultural resource.
- 4.25 The retention of T29 can therefore not be achieved. As such, the following compensatory measures should be put in place in response to its loss:
- 1) **Habitat Translocation** - Translocation of as much of the physical structure of the tree as possible, in large sections i.e. trunk and key limbs / branches as close to their original position as possible, re-erecting these elements in a vertical position either in purpose dug "planting" pits or strapped to suitable trees. This would almost-certainly not result in a 'live' tree.
 - 2) **Translocation of soils** from within the RPA of T29;
 - 3) **Replacement Planting** – additional woodland creation;
 - 4) **Enhancement and/or restoration** of existing ecological habitats including woodlands through management.
- 4.26 In an attempt to conserve genetic characteristics, it is recommended that acorns from T29 are propagated and/or scions (cuttings for grafts) of the original tree are taken.

- 4.27 The level of compensation provision shall be determined through professional judgement, taking into account the scale of the impacts and the perceived value of the veteran tree affected in the context of the proposed development and the benefits to the Local Plan it delivers. All of the measures outlined should be employed in order to provide an appropriate level of compensation.

d) Mitigation to offset the loss of tree cover

- 4.28 The removal of tree cover shall be limited to central lying, lower quality trees, along with the removal of trees to create small breaks in boundary tree cover to facilitate the potential access points identified by the constraints and opportunities presented on the Capacity Plan (FPCR 2018). Where possible existing trees shall be retained and integrated into proposed development to increase the maturity of the landscape and providing a natural green and leafy urban environment in which people would want to reside, whilst also benefiting local wildlife.
- 4.29 As with any development of this type and scale, certain tree losses cannot be entirely be avoided. Within the context of the current concept, the following tree losses (excluding T29 mentioned above) shall be required:

Table 1: Proposed Tree, Group and Hedgerow Losses

Tree / Group / Hedgerow Reference	Reasons for loss	Area of tree cover (m²)
G2(B)	Potential Circulation Routes	110 m ²
G8(C)	Potential Circulation Routes	Circa. 100 m ²
G14(B)	Primary Access off Ongar Road	circa. 60 m ²
G18(B)	Potential Circulation Routes	313 m ²
G19(B)	Developable Area 'F'	Entire group
G21(B)	Potential Circulation Routes	76 m ²
G22(B)	Primary Access off Weald Road	261 m ²
H2(C)	Potential Circulation Routes	14.7m length
H4(B)	Primary Access off Ongar Road	Entire hedge line

G19 – Category B Plantation Area

- 4.30 The largest area of tree cover to be lost shall be to G19. The land in which G19 stands was undulating, rising to the north and west of G19 and continuing to slope toward the large waterbody to the east, meaning that much of the drainage of water passes through the conifer plantation, with the ground wet / marshy underfoot. In order to provide a feasible development layout, the topography of this area of the site shall be subject to significant alterations.
- 4.31 The loss of this tree cover, although widespread in term of numbers of trees and the canopy cover provided, should not be seen as a significant constraint as this tree cover was only originally planted for commercial harvesting and as such, was always limited in its contribution to both the arboricultural resource and landscape amenity value, albeit limited, it currently provides.
- 4.32 As demonstrated by the schemes landscape proposals, a significant number of trees shall be planted across the development. The intention of this new planting, along with the management of the existing tree population, shall ensure biodiversity enhancement and habitat creation alongside extensive conserved and new habitats, with wooded areas being planted on the higher slopes and fringing the development.
- 4.33 The proposed new planting should comprise a large quantity of native species including species of oak to compensate for the loss of T29 and ensure continuity of the landscape character.

Key Opportunitiese) Retention of a large majority of the existing tree population and the securing of new tree planting

- 4.34 The development provides an opportunity to enhance tree cover on the site by providing new tree planting and securing future management of the existing tree cover.
- 4.35 To retain trees within or close to development the design of the development should consider the arboricultural constraints of existing trees and design the development around these, so that a harmonious and sustainable relationship between retained trees and built structures can be achieved.
- 4.36 The Tree Survey Plans provided shows the arboricultural constraints including crown spread, Root Protection Areas (RPA) and shading influence. The RPA's of category A, B and C trees and not those classified as veteran, has been calculated in accordance with section 4.6 of BS5837 and is the area surrounding the tree containing sufficient rooting volume for the specimen to have the best chance of survival in the long term. Any proposed development should avoid construction, excavation or changes in ground level within the RPA of retained trees as this has the potential to impact on their future health and reduce their chance of survival.
- 4.37 A small number of existing trees were considered of low quality or displayed structural defects as noted in the Appendix A – Tree Schedule. It would be necessary, in the interest of safety, to produce an Arboricultural Management Plan and Schedule of Tree Works, as a condition of a proposed development, to rectify any existing defects which would pose a risk to members of the public, as well as to improve the condition of the existing tree cover.

- 4.38 The development also provides an opportunity to secure new tree and hedgerow planting on the site within areas of amenity green space and landscape buffers. This new tree planting should not only mitigate for any tree and hedgerow removal required to facilitate a development but should increase tree cover on the site.
- 4.39 Any new tree planting should be appropriate for the future use of the site and be planted with due care and consideration ensuring an adequate provision of a high-quality rooting environment, and space, is provided within which trees can thrive and reach their full potential.
- 4.40 New habitat creation proposals should aim to increase the diversity of habitats present and provide structural diversity. Any garden planting proposed at the outset should also seek to use native species of value to wildlife. Suitable small tree species for inclusion in garden planting schemes include field maple *Acer campestre*, silver birch *Betula pendula* and holly.
- 4.41 All informal areas of planting should use native species and be subject to sympathetic management to promote their conservation value. More formal areas should consider the use of non-native species with known value to wildlife these are often species with nectar bearing flower, fruit and berries, as these enhance the foraging opportunities for local wild fauna including birds and invertebrates.

f) Investment in the future management of both the veteran tree population and the ancient woodland g) safeguarding and enhancement and h) increasing public accessibility to a well-treed site, creating additional areas of recreation within an urban environment

- 4.42 Veteran trees and ancient woodland identified as part of this assessment will require further survey work to inform any future management. This further survey work will be required sufficient to meet planning application needs. This future management should follow the guidance with Ancient and other Veteran Trees: Further Guidance on Management (Lonsdale, D (ed.) (2013).
- 4.43 A long-term management plan will be implemented which will be designed to enhance the woodland with prescriptions such as invasive species removal, resumption of coppicing, deer control (if necessary), and rerouting pathways to avoid more sensitive areas, being put in place.
- 4.44 It is considered that if the development was to progress, the woodland could be brought under a management regime that would be advantageous to its status. Rather than being of detriment to the LWS it is considered that providing there is a commitment to provide appropriate management and involve the local community, the woodland will benefit from the proposed adjacent development.
- 4.45 The long-term vision for the woodland should be to provide woodland which would benefit local wildlife and could be accessed and enjoyed by the public.

General Recommendation

- 4.46 The indicative positioning of both the pedestrian / cycleways and the flood provision, including the proposed basins and swales across the development, should look to avoid the RPA's of retained trees. Where necessary, the use of "no-dig" construction methods should be considered prior to decisions being made as to the removal of each tree concerned, where conflicts between trees identified for retention and the layout arise.

Such methods of construction and the use of industry led specialist engineering solutions i.e. three dimensional “load bearing” cellular confinement systems can be used particularly in the case of carriageways, footways and driveways in order to avoid unnecessary losses of trees.

- 4.47 As recommended by the guidance given in section 7.7 of BS5837 services, where possible, should not encroach within the Root Protection Areas of retained trees. If below-ground services are proposed within a Root Protection Area, modifications to the alignment of the service route may need to be made in order to minimise adverse effects on root stability and overall tree health.
- 4.48 Consideration may also need to be given to the potential for tree roots of newly planted trees and hedgerows to affect or compromise the future services. As far as feasible, it would be preferable that proposed services near both the existing and any new planting should be ducted for ease of access and maintenance and grouped together to minimise any future disturbance.
- 4.49 It is advised that a detailed Topographical survey is conducted in the future to better inform the potential constraints posed by the tree cover.
- 4.50 A full Arboricultural Impact Assessment should be provided in support of any future planning application, sufficient to meet planning needs, to assess the relationship between the development layout and the retained trees. This impact assessment should identify any trees or hedgerow to be removed and identify areas where new tree and hedgerow planting could be provided.

client
Hallam Land Management

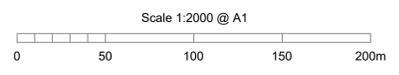
project
**Callcott Hall Farm
 Brentwood**

drawing title
TREE SURVEY PLAN

scale
 1:2000 @ A1
 drawing/checked
 EKP / CTT
 date
 February 2019

drawing number
8363-T-01

CAD file: K:\8300\8363\ARB\Plans\Tree Survey Plan.dwg



- KEY**
- Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
 - Category A - Trees / Groups of High Quality (BS 5837:2012)
 - Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
 - Category C - Trees / Groups of Low Quality (BS 5837:2012)

- Hedgerow Hatching (Colour Indicates BS5837:2012 Category)
- Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
- Veteran Tree Root Protection Area (in accordance with Ancient and Other Veteran Trees: Further Guidance on Management)
- Ancient Woodland 15m Buffer (in accordance with National Ancient Woodland and Veteran Tree Standing Advice)
- T1 (A)
G1 (A)
- Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

NOTES

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

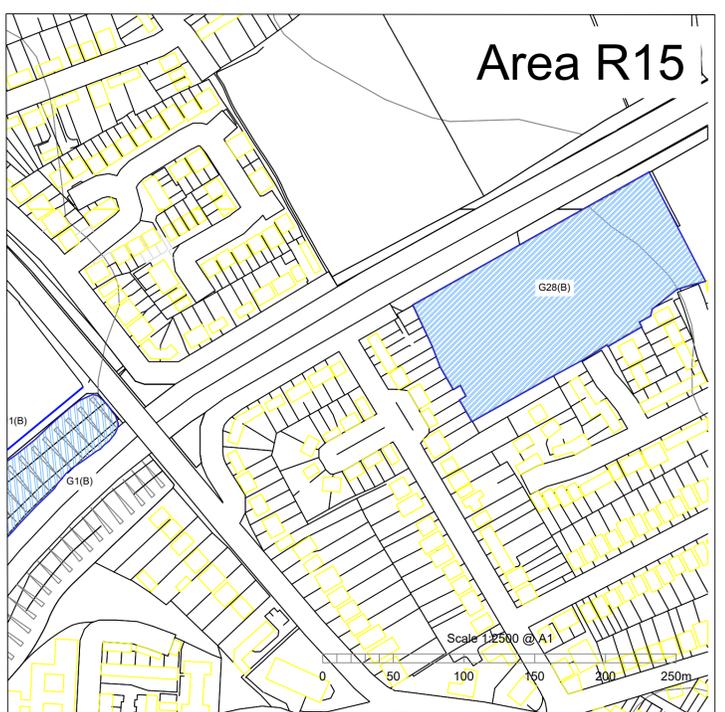
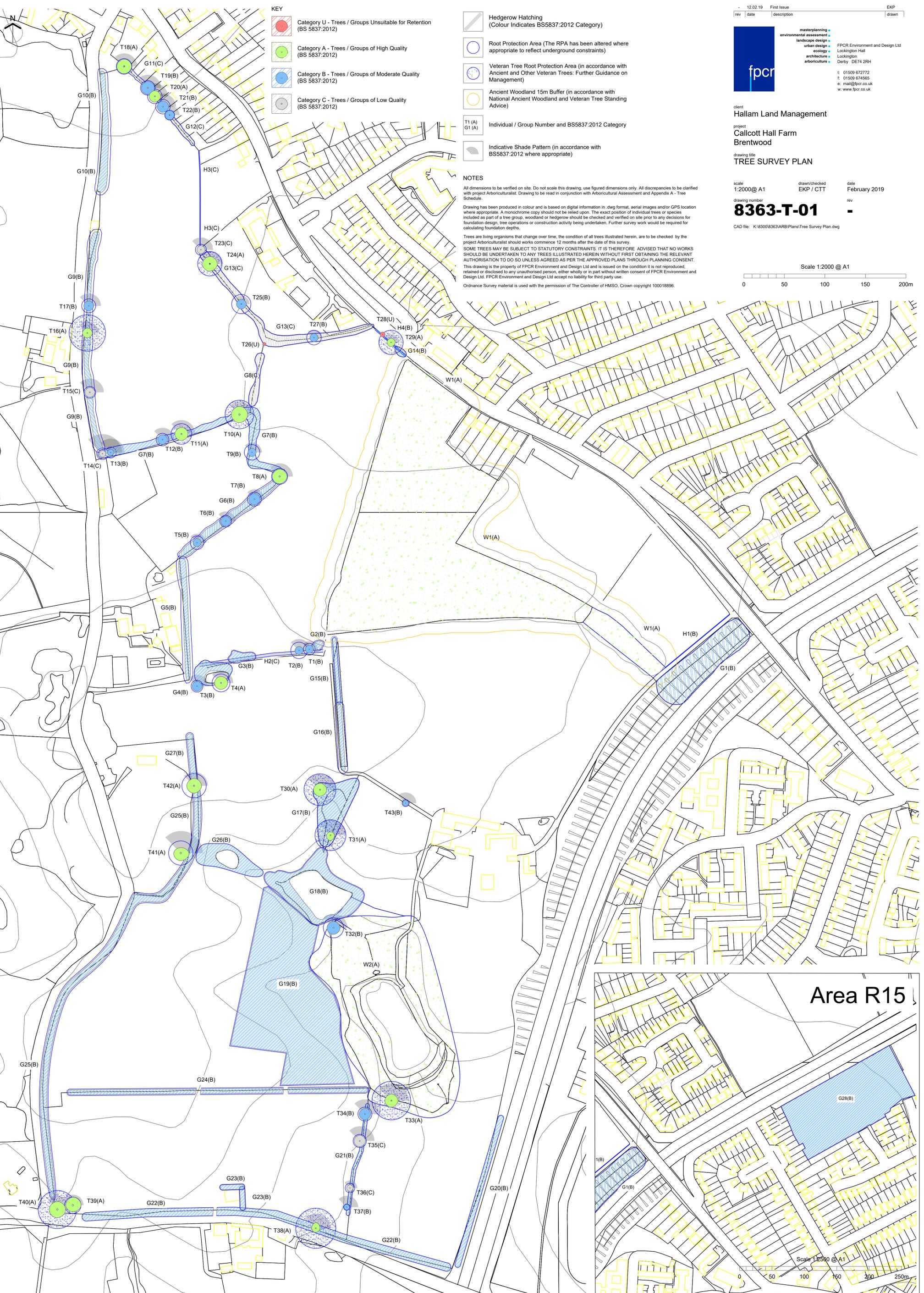
Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

SOME TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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- KEY**
- Tree Group to be Retained
 - Tree/Group to be removed to facilitate the proposals (Including G19 Christmas Trees)
 - Category U - Unsuitable for retention on arboricultural grounds
 - Hedgerow Proposed to be Retained and Incorporated into the New Development

- Hedgerow Proposed to be Removed to Facilitate the Development upon Approval of the Application
- Woodland to be retained
- Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
- Veteran Tree Root Protection Area (in accordance with National Ancient Woodland and Veteran Tree Standing Advice)
- Ancient Woodland 15m Buffer (in accordance with National Ancient Woodland and Veteran Tree Standing Advice)
- T1 (A)
G1 (A) Individual / Group Number and BS5837:2012 Category
- Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

NOTES

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 environmental assessment
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FPCR Environment and Design Ltd
Lockington Hall
Lockington
Derby DE74 2RH

t: 01509 672772
f: 01509 674965
e: mail@fpcr.co.uk
w: www.fpcr.co.uk

client
Hallam Land Management

project
**Callcott Hall Farm
Brentwood**

drawing title
PRELIMINARY TREE RETENTION PLAN

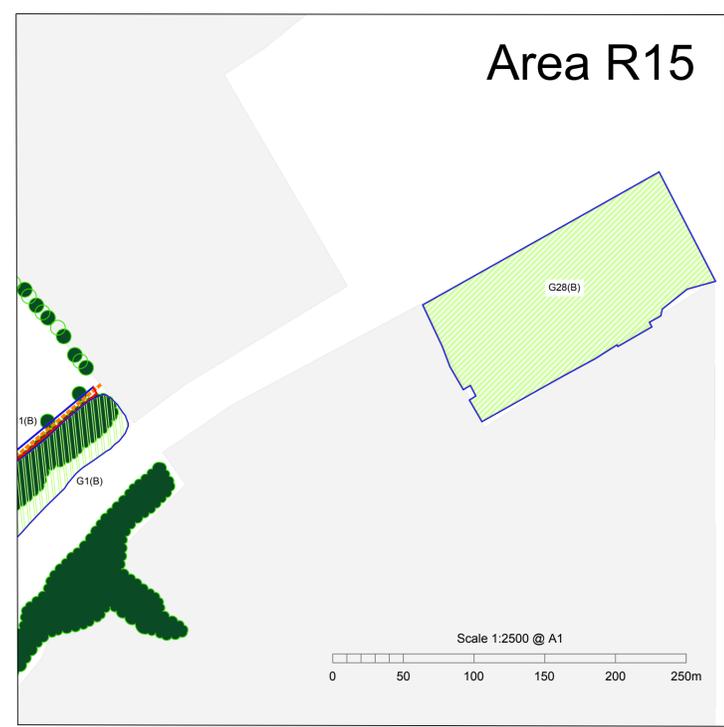
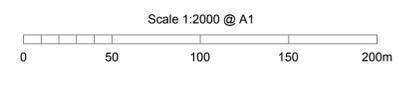
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Appendix A - Tree Schedule

Measurements	Age Class	Overall Condition	Root Protection Area (RPA)
Height - Measured using a digital laser clinometer (m)	YNG: Young trees up to ten years of age	G - Good: Trees with only a few minor defects and in good overall health needing little, if any attention	<ul style="list-style-type: none"> The RPA Radius column provides the extent of an equivalent circle from the centre of the stem (m). The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the rooting area required for a tree to be successfully retained. Tree roots extend beyond the calculated RPA in many cases and where possible a greater distance should be protected. Where veteran trees have been identified the RPA has been calculated in accordance with Natural England guidance i.e. 15x the stem diameter, uncapped.
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837	SM: Semi-mature trees less than 1/3 life expectancy	F - Fair: Trees with minor rectifiable defects or in the early stages of stress from which it may recover	
Crown Radius - Measured using a digital laser clinometer radially from the main stem (m)	EM: Early mature trees 1/3 – 2/3 life expectancy	P - Poor: Trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term	
Abbreviations est - Estimated stem diameter avg - Average stem diameter for multiple stems upto - Maximum stem diameter of a group	M: Mature trees over 2/3 life expectancy	D - Dead: This could also apply to trees in an advanced state of decline and unlikely to recover	
	OM: Over mature declining or moribund trees of low vigour	The BS category particular consideration has been given to the following <ul style="list-style-type: none"> The health, vigour and condition of each tree The presence of any structural defects in each tree/group and its future life expectancy The size and form of each tree/group and its suitability within the context of a proposed development The location of each tree relative to existing site features e.g. its screening value or landscape features Age class and life expectancy 	
	V: Veteran tree possessing certain attributes relating to veteran trees		

Structural Condition
<p>The following is an example of considerations when inspecting structural condition:</p> <ul style="list-style-type: none"> The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay Soil cracks and any heaving of the soil around the base Any abrupt bends in branches and limbs resulting from past pruning Tight or weak 'V' shaped forks and co-dominant stems Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994) Cavities as a result of limb losses or past pruning Broken branches or storm damage Damage to roots Basal, stem or branch / limb cavities Crown die-back or abnormal foliage size and colour

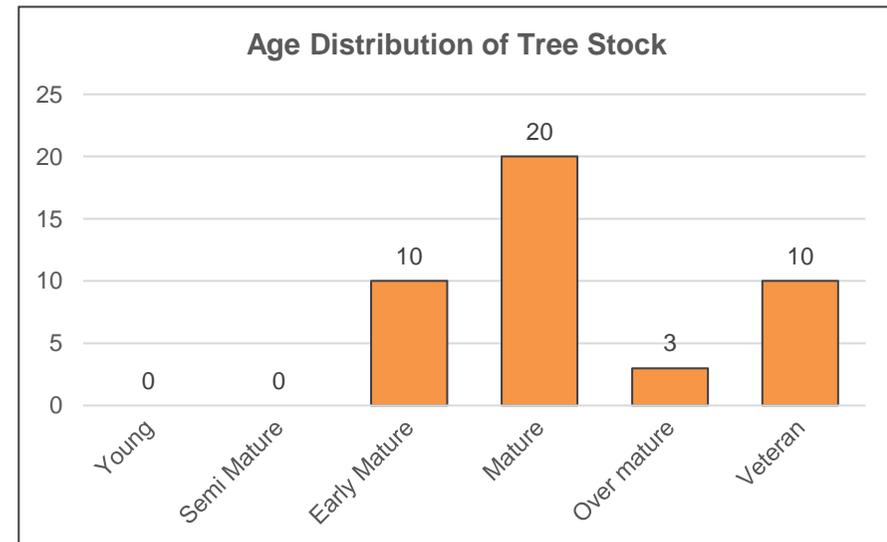
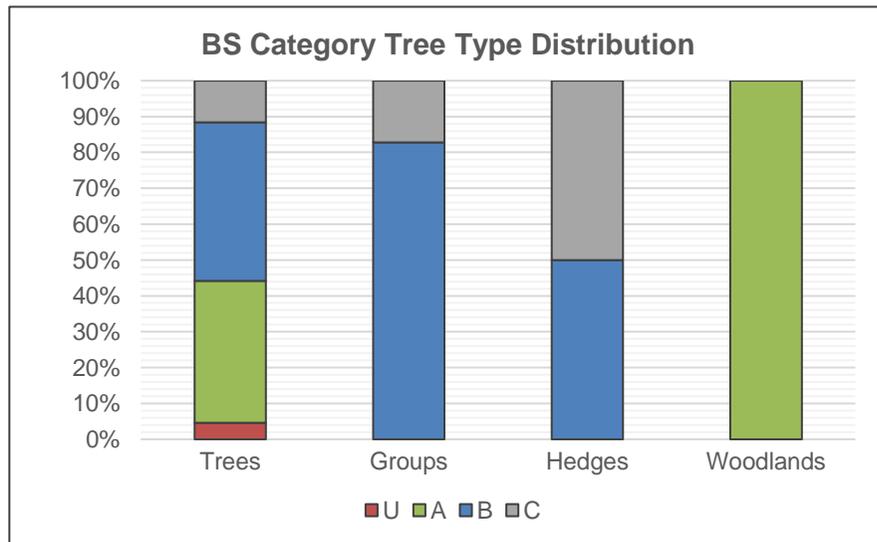
Quality Assessment of BS Category
Category U - Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.
Category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

Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U	T26, T28	2		0
Category A	T4, T8, T10, T11, T16, T18, T20, T24, T29, T30, T31, T33, T38, T39, T40, T41, T42	17	W1, W2	2
Category B	T1, T2, T3, T5, T6, T7, T9, T12, T13, T17, T19, T21, T22, T25, T27, T32, T34, T37, T43	19	G1, G2, G3, G4, G5, G6, G7, G9, G10, G14, G15, G16, G17, G18, G19, G20, G21, G22, G23, G24, G25, G26, G27, G28, H1, H4	26
Category C	T14, T15, T23, T35, T36	5	G8, G11, G12, G13, H2, H3,	7
	Total	43	Total	35

BS Category Tree Type Distribution displays the proportion of trees assessed in each type to enable a better understanding of the category distribution.

Age Distribution of Tree Stock shows the number of trees in each age category across the tree stock allowing assessment of their longevity to be made.



Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	English Oak Quercus robur	10	350 350 350	5	M	F	Multi leaders from 1m Outgrown hedgerow	166	7.3	B (i)
T2	English Oak Quercus robur	14	600 600	5	M	F	Branch stubs evident Major dead wood evident in the crown (>75mm) Multi stemmed from	326	10.2	B (i)
T3	English Oak Quercus robur	14	610	6	M	G	Epicormic growth evident within the crown Low crown form Growing on bank leading to small pond Storm damage noticed in upper crown with exposed heartwood with cavity Dense crown Likely recent excavation of base	168	7.3	B (i)
T4	English Oak Quercus robur	15	920	8	M	G	Characteristic for species Growing on bank leading to small pond Storm damage noticed in upper crown with exposed heartwood with cavities Likely recent excavation of base Epicormic shoots on main stem Flailed	383	11.0	A (i)
T5	English Oak Quercus robur	11	700	5	EM	F	Branch stubs evident Light ivy cover Minor dead wood evident in the crown (<75mm) Hedgerow tree Flail damage	222	8.4	B (i)
T6	English Oak Quercus robur	12	600	6	EM	F	Branch stubs evident Light ivy cover Minor dead wood evident in the crown (<75mm) Hedgerow tree Flail damage	163	7.2	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T7	English Oak Quercus robur	12	720	7	EM	F	Branch stubs evident Light ivy cover Minor dead wood evident in the crown (<75mm) Potential Roost Features (PRF) Pruning wounds noted Storm damage present Hedgerow tree Flail damage Split branch	235	8.6	B (i)
T8	English Oak Quercus robur	16	820	9	EM	F	Branch stubs evident Broken branches evident Crossing and rubbing branches Light ivy cover Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Potential Roost Features (PRF) Pruning wounds noted Storm damage present Hedgerow tree Flail damage Split branch Dangerous branch within crown	304	9.8	A (i)
T9	English Oak Quercus robur	12	795	5	EM	F	Bark wounds noted Crossing and rubbing branches Lapsed Pollard at 4m Established regrowth Evidence of decay within main stem Basal cavity which possibly extends to bole	286	9.5	B (iii)
T10	English Oak Quercus robur	16	1180	10	V	F	Branch stubs evident Light ivy cover Major dead wood evident in the crown (>75mm) Lapsed pollard at 2m Established regrowth Hollowing within main bole that extends up pollard heads	984	17.7	A (iii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T11	Ash Fraxinus excelsior	17	8x 300	8	V	F	Branch stubs evident Broken branches evident Minor dead wood evident in the crown (<75mm) Laid hedgerow specimen Eight well established uprights Large girth at base	509	12.7	A (iii)
T12	Hornbeam Carpinus betulus	14.5	650	6	EM	F	Bark wounds noted Branch stubs evident Crossing and rubbing branches Multi leadered from 2m	191	7.8	B (i)
T13	Ash Fraxinus excelsior	17	400 400	4	M	F	Characteristic for species Light ivy cover Major dead wood evident in the crown (>75mm) Twin stemmed from base	145	6.8	B (i)
T14	Cider Gum Eucalyptus gunni	24	est 600	4	M	F	Situated offsite Unable to gain access Twin stemmed at three metres Poor Union	163	7.2	C (i)
T15	Ash Fraxinus excelsior	17	600	6	M	F	Broken branches evident Flail damage evident Minor dead wood evident in the crown (<75mm) Lever arm extends to west over Road	163	7.2	C (i)
T16	English Oak Quercus robur	14	1500	6	V	F	Epicormic growth evident within the crown Flail damage evident Light ivy cover Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Lapsed pollard Situated within tree group adjacent to Road	1590	22.5	A (iii)
T17	English Oak Quercus robur	15	720	6	M	F	Epicormic growth evident within the crown Lapsed pollard at three metres Situated within tree group adjacent to Road	235	8.6	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T18	English Oak Quercus robur	16	est 800	9	M	G	Unable to gain access Multi leader form develops at 4m Possible lapsed Pollard Situated off-site by 2m	290	9.6	A (i)
T19	English Oak Quercus robur	16	est 750	8	M	G	Epicormic growth evident within the crown Minor dead wood evident in the crown (<75mm) Potential Roost Features (PRF) Pruning wounds noted Sparse / thinning crown Storm damage present Situated on site boundary	254	9.0	B (i)
T20	English Oak Quercus robur	16	est 750	7	M	G	Epicormic growth evident within the crown Minor dead wood evident in the crown (<75mm) Pruning wounds noted Situated off site by 1m within rear garden	254	9.0	A (i)
T21	English Oak Quercus robur	16	est 750	7	M	G	Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Pruning wounds noted Stored Coppice Situated on site boundary	254	9.0	B (i)
T22	English Oak Quercus robur	12	est 495	6	EM	G	Branch stubs evident Epicormic growth evident within the crown Flail damage evident Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Pruning wounds noted Stored Coppice Situated on site boundary	111	5.9	B (i)
T23	Ash Fraxinus excelsior	15	est 8x 200	5	M	P / F	Pollard at one metre Situated within hedgerow Decay evident within pollarded stem	145	6.8	C (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T24	English Oak Quercus robur	16	1000	9	V	G	Branch stubs evident Crossing and rubbing branches Epicormic growth evident within the crown Lapsed Pollard at nine metres Main stem hollowing from ground level up to four metres polyporous squomasa	707	15.0	A (i),A (iii)
T25	English Oak Quercus robur	10	680 720	6	M	F	Failed trees Light ivy cover Twin stemmed from base	444	11.9	B (i)
T26	English Oak Quercus robur	10	750	2	M	D / P	Bark wounds noted Epicormic growth evident within the crown Light ivy cover Dead tree with some epicormic growth	N/A	N/A	U
T27	English Oak Quercus robur	10	est 750	5	M	F	Dense ivy cover on main stem Minor dead wood evident in the crown (<75mm)	254	9.0	B (i)
T28	English Oak Quercus robur	10	800	3	M	D / P	Bark wounds noted Standing dead tree adjacent to road - unsafe	N/A	N/A	U
T29	English Oak Quercus robur	10	est 1000	5	V	F	Branch stubs evident Flail damage evident Light ivy cover Lapsed pollard at 1.5m Hollowing within bole	707	15.0	A (iii)
T30	English Oak Quercus robur	19	1310	8	V	F	Bark wounds noted Branch stubs evident Close cultivation of the soil Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Storm damage present Outer crown growth thinning Dense epicormic growth forming toward lower crown No stem billowing recorded Early signs of retrenchment	1213	19.7	A (iii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T31	English Oak Quercus robur	19	1270	N - 3 S - 6.5 E - 4 W - 4	V	F	Bark wounds noted Epicormic growth evident within the crown Heartwood exposed Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Stem burrs prominent Large bark wound on west side of lower main stem Heartwood exposed and decaying Top of crown dying back and possesses stag headed form Fire damage noted as cause of bark loss	1140	19.1	A (iii)
T32	English Oak Quercus robur	17	1040	8	OM	F	Basal cavity observed Branch stubs evident Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Pruning wounds noted Small cavities or holes between several prominent buttress flares - possibly due to erosion of bank Large stub toward northern aspect resulting from loss of main leader at circa. 5m remnant stub decaying and evidence of squirrel damage present	489	12.5	B (i)
T33	Sessile Oak Quercus petraea	21	1590	8	V	F	Bark wounds noted Epicormic growth evident within the crown Minor dead wood evident in the crown (<75mm) Large heavily fissures main stem Possible lapse pillars fire to comprising the stems from a central bole at 3m Stem failed at 3m leaving a remnant stub 1.5m in length - stub decaying	1787	23.9	A (iii)
T34	Ash Fraxinus excelsior	18	est 720	7	M	F	Branch socket cavities observed Branch stubs evident Characteristic for species Close cultivation of the soil Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) No major defects were noted	235	8.6	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T35	Ash Fraxinus excelsior	18	est 680	7	M	F	Branch socket cavities observed Branch stubs evident Characteristic for species Close cultivation of the soil Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) No major defects were noted Sparse / thinning crown	209	8.2	C (i)
T36	Ash Fraxinus excelsior	9	6x 200	4	EM	F	Minor dead wood evident in the crown (<75mm) Multi stemmed from base Stored Coppice	109	5.9	C (i)
T37	Ash Fraxinus excelsior	14	est 310	4	EM	F	No major defects were noted	43	3.7	B (i)
T38	Turkey Oak Quercus cerris	18	est 1650	N - 7 S - 4 E - 4 W - 4	V	P / F	Bark wounds noted Branch stubs evident Dense undergrowth at the base Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Potential Roost Features (PRF) Pruning wounds noted Sparse / thinning crown Specimen in extensive decline Tree situated on a step bank running alongside main road Large stem on southern aspect has previously failed at circa. 8m large remnant stub remains Stub houses several hollows sheltered from rainfall Northern most stem remains attached bit devoid of any substantial crown growth 50% remain crown with less than 50% live crown growth Lower crown epicormic growth becoming established measuring 200 dbh	1924	24.8	A (iii)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T39	English Oak Quercus robur	13	850	N - 10 S - 7 E - 10 W - 8	M	G	Branch stubs evident Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Dense holly at base	327	10.2	A (i)
T40	Sessile Oak Quercus petraea	16	1570	10	V	F	Bark wounds noted Branch stubs evident Dense undergrowth at the base Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Large oak toward corner of site boundary Large stem burrs and heavily fissured main stem Crown thinning and epicormic growth emerging along scaffolds Tree possesses an open and spreading form Lack of natural retrenchment Would continue to manage without intervention at this stage	1742	23.6	A (iii)
T41	Sycamore Acer pseudoplatanus	27	1460	N - 5 S - 9 E - 10 W - 8	OM	F	Bark wounds noted Basal suckers present Epicormic growth evident within the crown Minor dead wood evident in the crown (<75mm) No major defects were noted	707	Capped at 15m	A (i)
T42	English Oak Quercus robur	17	1280	9	OM	G	Bark wounds noted Branch stubs evident Epicormic growth evident within the crown Low crown form Minor dead wood evident in the crown (<75mm) Pruning wounds noted Rabbit burrows at base Storm damage present Heavily butted main stem Dense crown and lack of significant features Situated next to hill fort Potential veteran, not quite enough qualifying features	707	Capped at 15m	A (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T43	Cider Gum Eucalyptus gunni	13	est 360	3.5	EM	F	Characteristic for species	59	4.3	B (i)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
G1	Ash Fraxinus excelsior Beech Fagus sylvatica English Oak Quercus robur Wild Cherry Prunus avium Hazel Corylus avellana Hornbeam Carpinus betulus Scots Pine Pinus sylvestris	16	upto 450	5	EM	F	Interlocking crowns Buffer planting along carriage way Contains occasional large oak	92	5.4	B (ii)
G2	Cider Gum Eucalyptus gunni	19	350	3	EM	F	Characteristic for species Planted to mask telephone mast Two trees	55	4.2	B (ii)
G3	English Oak Quercus robur	14	upto 400	4	M	F	Broken branches evident Interlocking crowns Situated within hedgerow	72	4.8	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G4	Ash Fraxinus excelsior Crack Willow Salix fragilis Horse Chestnut Aesculus hippocastanum Silver Birch Betula pendula Alder Alnus glutinosa Red Oak Quercus rubra Swedish Whitebeam Sorbus intermedia	14	upto 400	5	SM / EM	F	Planted tree group around body of water Pruning wounds noted Willow coppiced Lower quality specimens in group	72	4.8	B (ii)
G5	Lombardy Poplar Populus nigra 'Italica' Leyland Cypress Cupressocyparis leylandii	22	upto 400	2	EM	F	Lateral spread maintained up to 4m Occasional poplar behind conifer Occasional broken branches	72	4.8	B (ii)
G6	Ash Fraxinus excelsior Field Maple Acer campestre Goat Willow Salix caprea Hawthorn Crataegus monogyna Hornbeam Carpinus betulus	5	upto 300	2	EM	F	Double width hedgerow Light ivy cover Flailed Ditch running through hedgerow Occasional hornbeam and ash coppice within hedgerow	41	3.6	B (ii),C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G7	Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Sycamore Acer pseudoplatanus Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus	14	upto 425	5	EM	F	Boundary group with occasional larger oak with elder and blackthorn understory Broken hedge line with large gaps Limited screening value	82	5.1	B (ii)
G8	English Oak Quercus robur Hawthorn Crataegus monogyna Italian Alder Alnus cordata	10	upto 390	5	EM	F	Broken hedgerow containing mature oaks Flail damage Large gaps Dead trees within group	69	4.7	C (ii)
G9	Ash Fraxinus excelsior Field Maple Acer campestre Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus English Elm Ulmus procera Holly Ilex aquifolium Hornbeam Carpinus betulus	14	upto 500	3	EM / M	F	Light ivy cover Linear group of trees along road Mature trees within group Understory mainly hazel Gaps present Provides moderate screening Maintained by flail moving Dead elms noted	113	6.0	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G10	Ash Fraxinus excelsior Field Maple Acer campestre Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus English Elm Ulmus procera Holly Ilex aquifolium Hornbeam Carpinus betulus	14	upto 500	3	EM / M	F	Light ivy cover Linear group of trees along road Mature trees within group Mixed understory Gaps present Provides moderate screening Maintained by flail moving	113	6.0	B (ii)
G11	Hawthorn Crataegus monogyna Holly Ilex aquifolium	7	upto 250	3	EM	F	Unmaintained dense hedgerow Gaps present Ivy cover	28	3.0	C (ii)
G12	Elder Sambucus nigra Hazel Corylus avellana Hornbeam Carpinus betulus	7	upto 200	2	EM	F	Broken branches evident Flail damage evident Multi leadered form Outgrown hedgerow	18	2.4	C (ii)
G13	Crack Willow Salix fragilis Elder Sambucus nigra Hawthorn Crataegus monogyna Holly Ilex aquifolium	7	upto 200	2	M	F	Flail damage evident Failed trees Gaps present in hedgerow Outgrown hedgerow Un-maintained hedgerow	18	2.4	C (ii)
G14	English Oak Quercus robur	13	est 350 350 350	7	EM	F	Branch stubs evident Multi stemmed from base Next to carriageway	166	7.3	B (i)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G15	Ash Fraxinus excelsior English Oak Quercus robur Hawthorn Crataegus monogyna Wild Cherry Prunus avium Holly Ilex aquifolium Hornbeam Carpinus betulus Red Oak Quercus rubra Sweet Chestnut Castanea sativa	13	avg 200	4	SM / EM	G	Characteristic for species Close cultivation of the soil Low crown form Multi leaedered form No major defects were noted Buffer planting along field boundary	18	2.4	B (ii)
G16	Leyland Cypress Cupressocyparis leylandii	23	upto 470	2.5	M	F	Characteristic for species Low crown form Minor dead wood evident in the crown (<75mm) Multi leaedered form No major defects were noted	100	5.6	B (ii)
G17	Beech Fagus sylvatica Elder Sambucus nigra English Oak Quercus robur Hawthorn Crataegus monogyna Hybrid Black Poplar Populus x canadensis Silver Birch Betula pendula Holly Ilex aquifolium	19	avg 330	3.5	SM / EM	F	Characteristic for species Absent of any past management Small copse of trees	49	4.0	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G18	English Oak Quercus robur Horse Chestnut Aesculus hippocastanum Silver Birch Betula pendula Sycamore Acer pseudoplatanus Hornbeam Carpinus betulus	12	avg 280	2.5	SM / EM	F / G	Characteristic for species Low crown form No major defects were noted Pruning wounds noted Trees situated along edge of bank running around pond	35	3.4	B (ii)
G19	Norway Spruce Picea abies	12	avg 250	2	Yng / SM / EM	G	Characteristic for species Planted for commercial cropping	28	3.0	B (ii)
G20	Ash Fraxinus excelsior Silver Birch Betula pendula Hornbeam Carpinus betulus Scots Pine Pinus sylvestris	10	avg 160	2	SM / EM	G	Buffer planting along main A12	12	1.9	B (ii)
G21	Ash Fraxinus excelsior English Oak Quercus robur Hawthorn Crataegus monogyna Hornbeam Carpinus betulus	7	avg 200	2.5	EM / M	G	Outgrown hedgerow Un-maintained hedgerow	18	2.4	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G22	Ash Fraxinus excelsior Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Wild Cherry Prunus avium Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus	12	avg 220	2.5	SM / EM	G	Buffer group along edge of field on road bankside	22	2.6	B (ii)
G23	Leyland Cypress Cupressocyparis leylandii	16	avg 300	3	M	G	Characteristic for species Planted as shelter belt around barn	41	3.6	B (ii)
G24	Ash Fraxinus excelsior English Oak Quercus robur Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Aspen Populus tremula Hornbeam Carpinus betulus	12	avg 340	3	SM / EM / M	F / G	Bark wounds noted Basal suckers present Epicormic growth evident within the crown Low crown form Minor dead wood evident in the crown (<75mm) Multi leadered form Multi stemmed from base No major defects were noted	52	4.1	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G25	Ash Fraxinus excelsior Blackthorn Prunus spinosa English Oak Quercus robur Hawthorn Crataegus monogyna Horse Chestnut Aesculus hippocastanum Sycamore Acer pseudoplatanus Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus Sessile Oak Quercus petraea Common Larch Larix decidua	14	avg 450	4	SM / EM / M	F / G	Bark wounds noted Branch stubs evident Characteristic for species Crossing and rubbing branches Dense undergrowth at the base Epicormic growth evident within the crown Low crown form Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Multi leaded form Multi stemmed from base No major defects were noted Several larger oak along length of boundary - some up to 800 dbh in sporadic positions Majority of group hazel and hornbeam Gaps present along length	92	5.4	B (ii)
G26	Ash Fraxinus excelsior Silver Birch Betula pendula Sycamore Acer pseudoplatanus Hornbeam Carpinus betulus Sessile Oak Quercus petraea	14	avg 240	3	SM / EM / M	F	Single large oak and sycamore Trees situated in and around pond	26	2.9	B (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G27	Ash Fraxinus excelsior Silver Birch Betula pendula Red Oak Quercus rubra Weeping Willow Salix x sepulcralis 'Chrycosoma' Scots Pine Pinus sylvestris Sitka Spruce Picea sitchensis Wellingtonia Sequoiadendron giganteum	15	avg 400	3.5	EM	G	No major defects were noted	72	4.8	B (ii)
G28	Ash Fraxinus excelsior Blackthorn Prunus spinosa English Oak Quercus robur Hawthorn Crataegus monogyna Silver Birch Betula pendula Sycamore Acer pseudoplatanus Wild Cherry Prunus avium	14	avg 250	2.5	SM / EM	F	Characteristic for species Low crown form Multi leaved form Multi stemmed from base No major defects were noted Sporadic trees within a small area of land between A12 and residential parcel Large trees formed of silver birch and oak - mainly early mature in age Dense buffer along A12 unmaintained hedge Dense Blackthorn throughout Some area not possible to survey	28	3.0	B (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Field Maple Acer campestre Hawthorn Crataegus monogyna	2	avg 60	0.5	SM / EM	G	Light ivy cover Maintained hedgerow	2	0.7	B (ii)
H2	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna Hazel Corylus avellana Holly Ilex aquifolium	4	upto 150 100	2	EM	F	Gaps present in hedgerow Outgrown hedgerow maintained laterally	15	2.2	C (ii)
H3	Ash Fraxinus excelsior Horse Chestnut Aesculus hippocastanum Silver Birch Betula pendula Sycamore Acer pseudoplatanus Holly Ilex aquifolium	3	Over ivy 200	1	EM	F	Light ivy cover Maintained hedgerow	18	2.4	C (ii)
H4	Blackthorn Prunus spinosa Field Maple Acer campestre Hornbeam Carpinus betulus	2	upto 100	1	M	G	Maintained hedgerow	5	1.2	B (ii)

Wood No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
WOODLANDS										
W1	Ash Fraxinus excelsior Common Lime Tilia x europaea English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Silver Birch Betula pendula Sycamore Acer pseudoplatanus Wild Cherry Prunus avium Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus Sweet Chestnut Castanea sativa Scots Pine Pinus sylvestris Yew Taxus baccata	17	upto 6x 150	6	EM / M	G	Coppiced form Crossing and rubbing branches Heartwood exposed Occasional mature oak along Northern boundary of woodland adjacent to playing field possible veteran Eastern tip of woodland comprises of mixed species Northern section differs from southern section 1'm age Bracken and bramble ground story Limited understory with occasional Holly Historic management no evidence of recent management Windthrow evident Public access through multiple footpaths	61	4.4	A (ii)

Wood No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
W2	<p>Beech Fagus sylvatica Elder Sambucus nigra English Oak Quercus robur Silver Birch Betula pendula Sycamore Acer pseudoplatanus Holly Ilex aquifolium Hornbeam Carpinus betulus Turkey Oak Quercus cerris</p>	20	avg 350	4	SM / EM / M	F / G	<p>Bark wounds noted Characteristic for species Epicormic growth evident within the crown Established ivy cover Light ivy cover Low crown form Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Multi leadered form No major defects were noted Woodland tree cover surrounding edge of pond / lake Trees native and have received limited past management</p>	55	4.2	A (ii)

Appendix B - Veteran Tree Schedule

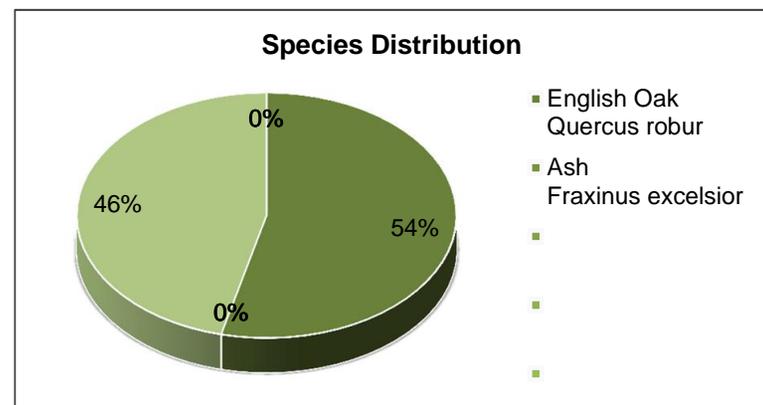
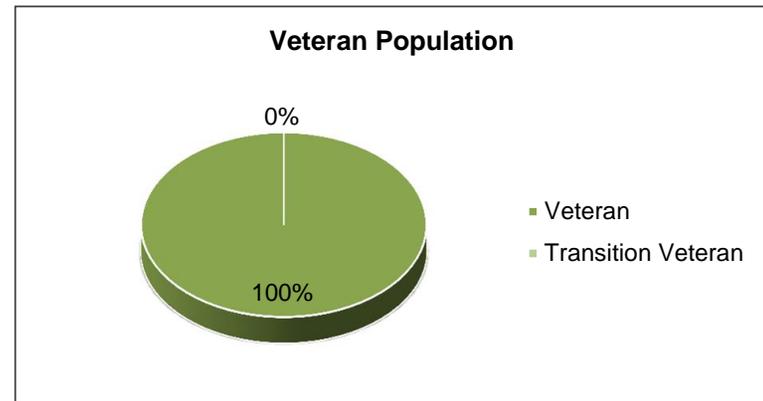
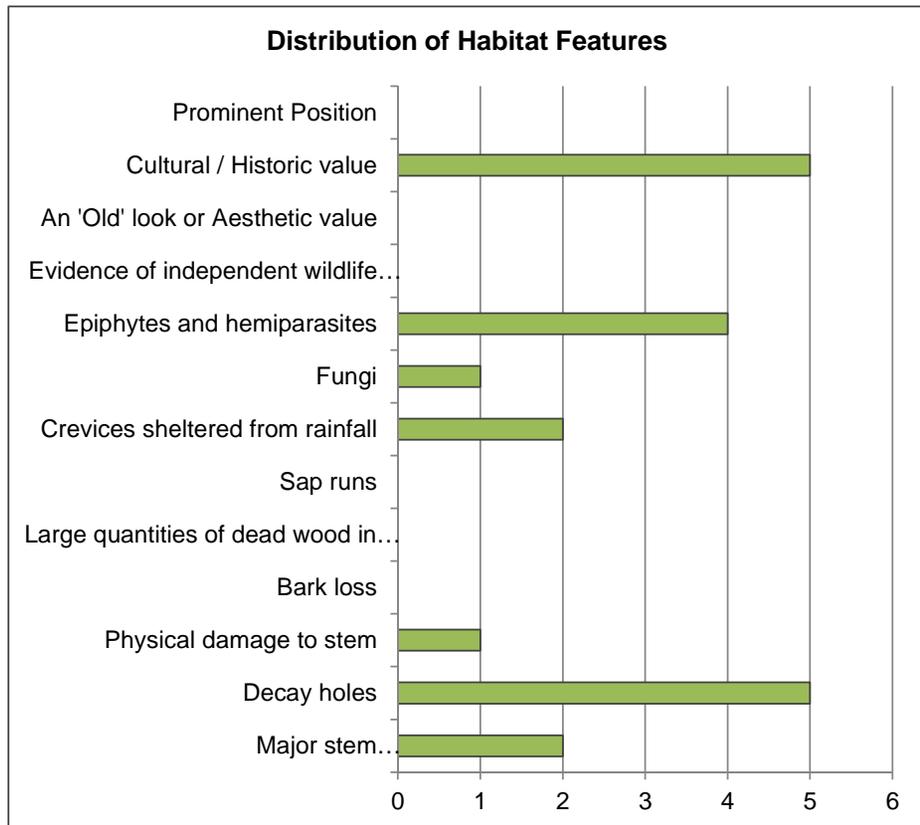
Key	Dimensions and Habitat Features		Associated Wildlife	Aesthetics
Tree considered Veteran	DBH (mm) - Stem diameter measured at 1.5m above ground level in mm	Major trunk cavities - Cavity to exceed 30% of stem diameter or to be progressively developing	Crevices sheltered from rainfall Dry, potential invertebrate habitat	An old look or Aesthetic value - Striking form or particularly gnarled
Tree considered Future Veteran	Large girth for species - as described by the Veteran Tree Initiative	Large quantities of dead wood in canopy - More than 50% of crown dead or dying back	Evidence of independent wildlife species - Droppings, nests, pellets	Cultural/historic value - Parkland tree, field or road marker
		Physical damage to trunk - Often as a result of storm damage	Fungi - Polypores or Basidiomycetes on or around tree	Prominent Position - Visually prominent in its landscape
		Decay Holes - Branch socket cavities on limbs or main stem	Epiphytes or Hemiparasites - lichen, liverworts, ivy, mistletoe	
		Epicormic Growth - Strong vigorous epicormic growth present about the tree		
		Bark Loss - Bark missing from main stem in large quantities		
		Sap Runs - Either from cracks in bark or cavities		

This document should be read in conjunction with the Arboricultural Assessment. The National Planning Policy Framework, a key government policy document, stresses the importance of Ancient and Veteran trees. From an ecological perspective veteran trees provide a rare and very specialist niche habitat and therefore preservation of this habitat is considered highly important. It would therefore be recommended that a detailed assesment be undertaken of the veteran habitat and this schedule should only be used as a guide to the presence of veteran trees on the site.

Distribution of Habitat Features - Displays the total of each habitat feature present in the surveyed tree cover. The proportion of trees with these features can be used to determine the condition and risks to the veteran tree stock.

Veteran Population - Provides the mix of Veteran/Future Veteran and non-veteran specimens across the surveyed tree stock.

Species Distribution - Shows the proportion of Veteran and Future Veterans for each species found during the assessment.



Identification		Dimensions				Habitat Features							Associated Wildlife				Aesthetics		
Tree No	Species	Large girth for species	Girth (cm)	Measurement height (m)	Form	Major stem cavities / hollowing	Decay holes	Physical damage to stem	Bark loss	Epicormic Growth	Large quantities of dead wood in canopy	Sap runs	Crevices sheltered from rainfall	Fungi	Epiphytes and hemiparasites	Evidence of independent wildlife species	An 'Old' look or Aesthetic value	Cultural / Historic value	Prominent Position
T10	English Oak Quercus robur	Yes	370.7	1.5m	LP	✓	✓			✓			✓		✓			✓	
T11	Ash Fraxinus excelsior	Yes	628.3	0.1m	C		✓			✓					✓			✓	
T16	English Oak Quercus robur	Yes	471.2	1.5m	LP		✓			✓					✓			✓	
T24	English Oak Quercus robur	Yes	314.2	1.5m	LP	✓	✓	✓		✓			✓	✓				✓	
T29	English Oak Quercus robur	Yes	314.2	1.5m	LP		✓			✓					✓			✓	
T30	English Oak Quercus robur	Yes	411.5	1.5m	M		✓			✓	✓								✓
T31	English Oak Quercus robur	Yes	399	1.5m	M	✓		✓		✓	✓	✓					✓		
T33	Sessile Oak Quercus petraea	Yes	499.5	1.5m	LP	✓		✓		✓							✓		
T38	Turkey Oak Quercus cerris	Yes	518.4	1.5m	M		✓		✓	✓	✓		✓				✓		✓
T40	Sessile Oak Quercus petraea	Yes	493.2	1.5m	M					✓	✓						✓		

