

LAND EAST OF SOUTHAMPTON ROAD, ALDERBURY

Arboricultural Impact Assessment



JSL4528_770
Land northeast of
Southampton Rd, Alderbury
Arboricultural Impact
Assessment
Rev -
Aug 2024

REPORT

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1 EXECUTIVE SUMMARY

Scope

- 1.1 An Arboricultural Survey and Arboricultural Impact Assessment (AIA) have been undertaken in support of the proposed development within Land to the northeast of Southampton Road, Alderbury. It is located within the redline shown below.



- 1.2 This planning application seeks permission for the development of mixture of residential dwellings, landscaping and associated infrastructure.
- 1.3 Trees were recorded, and information was gathered, to allow them to be considered using guidance contained within BS5837:2012 - *Trees in Relation to Design, Demolition and Construction – Recommendations*.
- 1.4 An AIA identifies any vegetation requiring removal, pruning and proposed impact on retained trees which will be necessary to facilitate the proposed development.

Findings & Recommendations

- 1.5 The principles in BS5837:2012 were used to fully assess the impacts of the proposed works on the trees and other vegetation.
- 1.6 The Site has two Tree Protection Orders (TPOs) on it. TPOs are administered by Wiltshire Council.
- a) TPO/2023/00014 forms an Area and Woodland TPO and covers all trees of whatever species at the time at which the TPO was served/confirmed – September 2023.
 - b) TPO – S/ALDE/TPO1 Protects groups and individuals however, no further information on the details of the TPO are known at the time of writing this report.

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- 1.7 A total of 57 individual trees, 9 groups of trees, and 9 hedges were recorded during the tree survey. Overall, the tree stock of the surveyed land was fair to good structural and physiological condition, but the majority (46%) of trees and groups were considered good quality (Category B) providing a large share of the total canopy cover of the site. Large and mature high-quality trees/groups/woodland (Category A) made up approximately 23% (9) and provided a large amount of high quality canopy cover of the site
- 1.8 Only one tree is proposed for removal due its poor arboricultural health and condition.
- 1.9 No tree pruning works are proposed to facilitate the proposed development.
- 1.10 The proposed access layout will encroach into the Root Protection Area (RPA) of the offsite Oak tree, T1. This tree is in poor arboricultural condition and has previously had its top removed down to approximately 10m in height which required large pruning wounds of approximately 20cm in diameter. Rooting of this tree is likely limited due to its decline and lack of live canopy and as such, the access road position is unlikely to impact the tree. However, further investigation is required to provide evidence of the assumed limited rooting area. Trial trenches are proposed to be excavated to establish the presence of large roots and the edge of the proposed access road.
- 1.11 All retained trees will be afforded protection by implementing a Construction Exclusion Zone (CEZ) using tree protection fencing (Heras-style). This must be erected in the positions shown on the Tree Protection Plan (JSL4528_710) attached to this report.
- 1.12 By following the guidance set out within this report, all retained trees should be sufficiently protected during the development works.

2 INTRODUCTION

- 2.1 RPS were instructed in August 2022, by Simply Planning, to undertake a Tree Survey and subsequently prepare an Arboricultural Impact Assessment (AIA) in respect of the proposed construction of a new residential dwellings and associated landscaping and infrastructure.
- 2.2 The survey was undertaken in accordance with BS5837:2012 as described within the 'Survey Methodology' attached to this report at Appendix A.
- 2.3 The purpose of the survey was to gather data on the trees and to prepare a Tree Constraints Plan that has been used in the design of the proposed new residential development. Appendix A – 'Survey Methodology' explains the process of interpreting the plan and how it is used during the design and impact assessment process.
- 2.4 This report should be read in conjunction with the supplied Tree Constraints Plan (see drawing JSL4528_700), Tree Protection & Removal Plan (see drawing JSL4528_710) and all other relevant Tables, Schedules and Appendices as detailed within the table of contents.
- 2.5 The tree positions were plotted using Topographical Survey information provided by The Client and Axciscape 4.02 software. The survey data was then collated and presented using AutoCAD software as the Tree Removal Plan, Tree Protection Plan, and Tree Constraints Plan along with their accompanying schedules.
- 2.6 The proposed layout design of the development as well as any other associated constructions and developments were superimposed onto the Tree Constraints Plan, enabling the arboricultural impact of the development to be assessed.
- 2.7 The survey and this assessment were undertaken by RPS Principal Arboriculturist Stefan Kowalczyk, Technical Member of the Arboricultural Association.

Limitations

- 2.8 This tree survey does **NOT** constitute an in-depth 'Tree Condition Survey', merely a basic site tree survey to the requirements of BS5837:2012. Any recorded findings of this survey are not valid following adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events.
- 2.9 To quote Claus Mattheck in his book 'Tree Biomechanics': *"Even trees expressing good strength with no decay and rooted in the best soil may still fail in extreme events. Nature has developed a natural failure rate unique to each species which is key in ensuring evolution and selection happens effectively."* Please refer to the book in question for more information.
- 2.10 Trees were not climbed or inspected below ground level and inaccessible trees will have best estimates made about the location, physical dimensions and characteristics.
- 2.11 Trees and woody vegetation were not assessed for their potential impact upon future construction issues such as foundation designs (re: NHBC chapter 4.2). Whilst this report may assist in assessing likely future impacts, it should not be classed as a comprehensive vegetation survey in relation to impact upon future designs or developments.

3 SITE INFORMATION

- 3.1 The site under consideration comprises a grass field site. Located to the northeast of Southampton Road, Alderbury and southwest of the A36.
- 3.2 The Site comprises a natural grass area that borders residential properties to the east and west, a grass open field to the northeast and Southampton Rod to the southwest.
- 3.3 The site is populated on the whole with grassland, with large mature trees along the north and western boundaries.
- 3.4 A TPO check was made using the Wiltshire Councils' interactive mapping system. It was deduced from this that parts of the proposed development site is covered by an **Area, Woodland, and Individual Tree Preservation Orders (TPOs)**.
 - a) TPO/2023/00014 forms an Area and Woodland TPO and covers all trees of whatever species at the time at which the TPO was served/confirmed – September 2023.
 - b) TPO – S/ALDE/TPO1 Protects groups and individuals however, no further information on the details of the TPO are known at the time of writing this report.
- 3.5 A Conservation Area check was also made using the Wiltshire Council interactive mapping system. It was deduced from this that the development site **is not situated within any Conservation Area currently enforced by the council**.

4 TREE QUALITY ASSESSMENT

Retention Values

- 4.1 All trees inspected were categorised using BS5837:2012 and the attached Tree Constraints Plan showing tree positions, numbers, and retention categories. Trees were recorded as individuals, groups, and hedges.
- 4.2 Trees have been surveyed as groups where they can be considered as forming a group as they form cohesive features either aerodynamically (i.e. they form a discrete group feature providing companion), culturally (i.e. they are composed of trees of a similar size, age and species subject to the same management) or visually (i.e. where the value of the trees within the group is as a whole rather than individually).
- 4.3 Where trees have been surveyed as groups the details recorded with respect to condition and retention value intend to represent an average tree within the group; however, on occasion, it must be noted that there will be exceptions within any group that do not conform to the typical character of that group.
- 4.4 The initial stage of a tree survey in accordance with BS5837:2012 looks at the trees on the site in terms of life expectancy and condition. Trees are then categorised according to their retention value.
- 4.5 **Category A** trees are those that have been assessed as being of a high quality and value; significant amendments to the proposed scheme should be considered in preference to their removal. These trees are shown in Green on the Tree Constraints Plan.
- 4.6 **Category B** trees are those that have been assessed as being of a moderate quality and value; amendments to the proposed scheme should be considered in preference to their removal. These trees are shown in Blue on the Tree Constraints Plan.
- 4.7 **Category C** trees are those that have been assessed as being of a low quality and value; the loss of these specimens should not be considered as a constraint to development. These trees are shown in Grey on the Tree Constraints Plan
- 4.8 **Category U** trees are those that have been assessed as being in poor condition and having no retention value; these trees should not be a material consideration in the planning process. These trees are shown in Red on the Tree Constraints Plan.
- 4.9 A total of 57 individual trees, 9 groups of trees, and 9 hedges were surveyed during the visit.
- 4.10 Of the 57 individuals recorded, 7 were **Category A** (high quality), 21 were **Category B** (moderate quality), 24 were **Category C** (low quality), and 1 was **Category U** (unsuitable for retention).
- 4.11 The tree groups recorded, 1 group and 1 woodland were **Category A** (high quality), 3 were **Category B** (moderate quality), and 5 were **Category C** (low quality).
- 4.12 All hedges and scrub recorded were **Category C** (low quality).

Physiological and Structural Condition

- 4.13 Trees considered to be in a good physiological condition are those with crown density and shoot extension growth levels within the expected ranges for their age and species. Generally, these trees, subject to being of a suitable structural condition, can be expected to make a lasting contribution to the site. Additionally, trees within the good condition class are likely to tolerate changes within their growing environment that occur as a result of development, as such their successful retention will be easier to achieve.
- 4.14 Trees considered to be in a fair physiological condition are those specimens exhibiting lower shoot extension growth and reduced crown density than would typically be expected. These specimens have a lower life expectancy than those within the good condition class and will not tolerate significant changes as a result of development as well as those in the good condition class.
- 4.15 Trees considered to be in a poor physiological condition are those exhibiting crown and shoot dieback and significantly reduced crown density. Trees of a poor physiological condition are not likely to make a lasting contribution to the site and whilst their retention in the short term may be beneficial such retention will only be achievable if the trees are fully protected throughout development as they will not tolerate changes in their growing environment.
- 4.16 While variations in condition exist within the tree groups, generally speaking, it was considered overall to be in **'good' and 1 'fair'** condition.

Structural Condition

- 4.17 There were large variations in the structural condition of the trees surveyed; however individual tree condition is largely consistent with expectations for the age, management, and species of the tree.
- 4.18 The majority of structural defects that were noted across most of the tree stock on the site, such as minor deadwood in tree crown, crossing branches and squirrel damage were not considered significant and are unlikely to result in the premature failure of the tree.
- 4.19 Minor defects and dieback were found in some of the young sapling trees surveyed within the site. Many of these trees were growing as a result of natural regeneration, having grown in unfavourable conditions, these trees will develop stunted crowns with defects which as branch failures, squirrel damage and overall spindly forms.
- 4.20 For a more in-depth study of the structural condition of the trees within the site, a thorough 'Tree Condition Survey' should be undertaken on the tree stock. Refer to the books: *'Visual Tree Assessment'* and *'The Body Language of Trees'* both written by Claus Mattheck, for a detailed analysis of the importance of identifying structural defects in trees.

Age Distribution

- 4.21 Trees assessed as being young (Y) in age are those considered to be less than 10 years old. These trees can generally be considered to have the potential for rapid and significant future growth. Whilst these specimens are not likely to make a substantial contribution to the landscape character of the site at present they will, if retained, provide succession for the eventual removal of mature or over-mature trees as a result of declining physiological or structural condition.
- 4.22 Trees assessed as being semi-mature (SM) are those of more than 10 years old but having attained less than 40% of the maximum lifespan expected for the species. These trees will generally make some contribution to the current landscape character and appearance of the site and their retention will provide a more immediate succession of mature trees. As with young trees these specimens will have the potential for rapid and significant future growth.
- 4.23 Early-mature trees (EM) are those considered to have reached between 40% and 70% of their ultimate life expectancy. These trees are generally not considered to have a significant potential for future growth though they will increase in size at a steadier rate than younger trees.
- 4.24 Mature trees (M) are those considered to have reached between 70% and 100% of their species life expectancy. These trees will have little future growth potential and they have generally reached their maximum expected size for the location. These trees will generally make the highest contribution to the landscape character of the site at this time; however, a tree stock over dominated by mature trees will require careful management to ensure that a continuation of canopy cover can be achieved.
- 4.25 Over-mature trees (OM) are those considered to have existed for longer than typical of their species. They do not have the potential to increase in size and may in fact reduce in size as their crowns begin to break up. These trees will often make a significant contribution to the landscape character of the site and are likely to have ecological value. However, the retention of these trees within new development must be carefully planned as they are approaching the end of their useful life expectancy and they will often have structural defects. Where over-mature trees are to be retained in new development it is essential that access is available for their eventual removal.
- 4.26 Veteran trees (V) are those that show features of biological, cultural, or aesthetic value that are characteristic of an individual surviving beyond the typical age range for the species. These trees have negligible potential to increase in size. Veteran trees are usually of a high ecological value and they will require sensitive management where they are to be retained in new development. As such it is again essential that they are located in areas where access is available to undertake management operations and where there is a reduced risk of harm occurring from failure of the trees.
- 4.27 Of the 57 individual trees, their age class distributions are: **32 Mature (M)**, **15 Early Mature (EM)**, **4 Semi-Mature (SM)**, **2 were Young (Y)** and the remaining **4 were Over Mature (OM)**.
- 4.28 Therefore, it can be safely said that the development site contains a fair range of ages but the majority being mature established trees.

Species Distribution

4.29 The tree species recorded during the survey are listed below:

BOTANICAL NAME	COMMON NAME
<i>Acer psuedoplatanus</i>	Sycamore
<i>Acer campestre</i>	Field Maple
<i>Betula pendula</i>	Silver Birch
<i>Pinus Nigra</i>	Austrian Pine
<i>Fagus sylvatica</i>	Beech
<i>Fraxinus Excelsior</i>	Ash
<i>Salix caprea</i>	Goat Willow
<i>Acer rubrum</i>	Red Maple
<i>Liriodendron tulipifera</i>	Tulip Tree
<i>Alnus glutinosa</i>	Common Alder
<i>Pinus sylvestris</i>	Scots Pine
<i>Prunus</i>	Cherry
<i>Quercus robur</i>	Common Oak

5 ARBORICULTURAL IMPACT ASSESSMENT - WORKS

Introduction

- 5.1 The construction process will need to be monitored during its progress and this Arboricultural Impact Assessment should be used as the document provided to guide the construction process.
- 5.2 Trees have finite energy reserves, developed each year throughout the growing season, which are utilised for biological processes such as growth and defence against pests or diseases throughout the following year.
- 5.3 Any development in proximity to trees has the potential to cause harm to those trees unless control measures are identified and acted upon; as such it is essential to consider the relationship between the proposed development and the retained trees to identify what precautions are necessary, proportionate and appropriate.
- 5.4 Development has the potential to impact upon the above ground as well as below ground parts of trees.
- 5.5 Whilst some damage that can occur, such as physical damage to the trees stems and branches from machinery movements, is clearly visible the impact from other aspects of work common on development sites which can have a significant effect upon the continued health of trees are not always immediately evident.
- 5.6 Damage that is not immediately evident, but which can cause long term harm to retained trees includes things such as damage to the soil structure by compaction causing root damage and levels changes altering the water table and affecting moisture availability.
- 5.7 To minimise the potential for harm to occur to retained trees all works should be carried out with regard to the tree protection measures detailed within this report.
- 5.8 In general, it can be seen that, by adopting appropriate methods of working, precautionary and protective measures, significant harm to retained trees can be avoided.
- 5.9 In particular, the establishment of a **Construction Exclusion Zone (CEZ)** by erection of tree protection fencing will minimise the potential for harm to occur to the canopy and root extents of retained trees.

Root Protection Areas

- 5.10 Root Protection Areas (RPAs) for each tree surveyed have been determined in accordance with BS5837:2012 Section 4.6 Root Protection Area. Initial RPAs for the trees were plotted onto the Tree Constraints Plan (see drawings JSL4528_700) and have been used to produce all relevant tree plans in this statement.
- 5.11 The layout of the development will encroach the Root Protection Areas (RPA) a no dig solution is proposed in order to mitigate the impact to tree health.

Table of Proposed RPA Impact

Alderbury Rd	Type	Impact m2	RPA	Percentage	Level
T1	Access Road	19	452	19%	Medium 19%
Note* T1 is in a significantly compromised condition and its actual rooting area is likely to be significantly smaller than the British Standard guidance. Trial trenches are due to be excavated at the edge of the proposed access road to establish the presence of roots or not. At which point this an update to this AIA will be issued to include the findings of the investigation.					

Proposed Tree Removal

- 5.12 **1nr** individual tree is proposed for removal for good arboricultural management due to poor health and condition.

Proposed Individual Tree Removal	
Individual	Count
A	0
B	0
C	0
U	1 (T41)
Hedge	1 small section of H47 may require pruning back to provide adequate working space for the proposed car park.
Grand Total	1

Services and Utilities

- 5.13 Details plans for all underground services have not been assessed as part of this study however, during any installation of services or utilities, no machinery will be permitted within the CEZ around these trees during any works of this nature so as to avoid compaction of soils and mechanical damage to tree limbs, stems and roots. Appropriate contractor Method Statements will be required to ensure these works are undertaken in a sensible and orderly manner. General guidance for such works can be found in NJUG Volume 4 - *Guidelines for the planning, installation and maintenance of utility services in proximity to trees*. (National Joint Utilities Group 2007).

Planning of Site Operations

- 5.14 Planning of site operations will take sufficient account of trees to ensure that no access and movement of material into and around the site impact on trees. Physical damage can result if this is not considered. Consequently, any movement of plant or materials in proximity to trees will be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is always maintained.
- 5.15 All materials or fluids will not be stored within or near the RPA of retained trees, particularly those whose accidental spillage would cause contamination and damage to a tree. Fluids must be handled well away from the outer edge of the RPA of trees.
- 5.16 Chippings or any other mulching materials should not be piled or stored within the RPA of any retained tree and specifically not over the buttresses and lower stem of any tree.
- 5.17 Correct planning of access routes and storage areas prior to start on site will ensure no impacts from these activities will occur. It is considered that there should be ample space away from trees for purposes of storage.

6 PRE-DEVELOPMENT WORKS

Tree Removal

- 6.1 Complete all proposed tree removal on granting of full planning permission.

Standard of Work

- 6.2 All tree works should be carried out in accordance with BS3998:2010 *Tree Work - Recommendations* and latest arboricultural best practice.
- 6.3 All tree work should be carried out by suitably qualified, competent and insured arboricultural contractors.
- 6.4 The aim of any pruning activities should be to provide a natural appearance within the crown and should not be to leave an acute side to the crown of the tree.
- 6.5 Final pruning cuts should be considered and where possible to natural target pruning points such as branch unions where branch bark ridges can be used to guide the pruning cuts. Where these points are not available the exposed stub should be as small as possible and an assessment of each individual branch taken by the operative before making the cut.
- 6.6 All cuts should be made so that they do not provide future structural issues such as weak forks and loss of structural integrity. Branch reductions should be used to eliminate bark rips and tears; these forms of damage to retained trees will not be accepted by the client.
- 6.7 If there are any concerns regarding the above, then this shall be raised prior to any construction works commencing.
- 6.8 Any green and woody waste generated by the tree works shall be removed from site and disposed of in an environmentally sustainable manner.

Timing of Works

- 6.9 All tree works shall be completed prior to commencement of any construction works on the site.
- 6.10 All works shall be timed to have regard to the phenological cycles of protected species that are associated with trees, notably birds and bats.

Tree Protection Barriers

- 6.11 All tree protection fencing should be erected to its position during the pre-development periods of construction. The position is shown on the Tree Protection Plan (see drawings JSL4528_710).
- 6.12 To ensure successful tree protection during this process, all operatives should be briefed on the need to pay regard to the existing trees and all operations adjacent to trees be properly supervised. This will help ensure the works do not affect adversely the trees.
- 6.13 Once the protective barriers are in place they must remain in situ throughout the course of the development until the completion of all building works. Copies of the Tree Protection Plans shall be placed in the site office for reference by all site staff.

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- 6.14 The protective fencing barrier is to be constructed in accordance with the specification detailed at Appendix C.
- 6.15 Signs (A3 in size) detailing the purpose of the protective fencing shall be attached to the fencing at 10m intervals. Such signs should be weatherproof and shall be substantially in the form of the specimen provided at Appendix D. Signs must be replaced as necessary should they be removed or become illegible.

7 CONSTRUCTION WORKS

Construction Exclusion Zone

- 7.1 The CEZ as defined by the protective fence line shall be regarded as sacrosanct, and the protective fencing shall not be moved or taken down at any time.
- 7.2 Within the CEZ there must be no mechanical digging or scraping, no alteration to existing ground levels including soil stripping, no earthworks, no handling or discharge of any chemical substance, concrete washings or of any fuels.
- 7.3 Furthermore, vehicular or pedestrian access and the storage of any materials is prohibited within the CEZ.
- 7.4 Additionally, no materials that may contaminate the soil such as concrete mixings, diesel oil and vehicle washings shall be discharged within 10m of the stem of any tree and no fires shall be lit within 10m of the maximum extent of a trees crown.

Site Compounds and Materials Stores

- 7.5 Activities related to the establishment of a temporary site compound have the potential to impact upon retained trees by various means. In particular the storage and mixing of chemicals and materials such as concrete can have a damaging effect on tree health if precautions are not taken.
- 7.6 To prevent harm occurring to trees provision for materials storage, site offices, deliveries and other related activities should be made available in areas away from retained trees.
- 7.7 The offices, parking of site and contractor vehicles, along with secure storage will be provided in an area away from retained trees. This area will be directly controlled by the Site Manager.

Monitoring

- 7.8 Following erection of the protective fencing and prior to commencement of the construction phase an inspection of the site by the Council's Tree Officer, should be arranged to confirm fencing has been installed in accordance with the Tree Protection Plan (see drawing JSL4528_710) and any relevant conditions that may be attached to a grant of planning consent for the development.
- 7.9 Further monitoring visits should be carried out during the implementation of the works on site, ideally on a monthly basis to ensure all planning conditions are being implemented.

Reporting

- 7.10 During the construction phase of the development the Site Manager will be responsible for liaising with the Council Tree Officer on all arboricultural issues.
- 7.11 Should any arboricultural issues become apparent during the works the Site Manager should immediately contact the appointed Arboricultural Consultant or the Council's Tree Officer for advice upon how to proceed.

Tables

Table 1: Tree Survey Schedule (JSL4528_750)

Key to Inspection Report Form

Species	Genus and variety
Height	Measured Clinometer Reading or Estimated Height in Metres
Girth (dbh @ 1.5m)	Diameter measured in cms, or estimated, Where multi stemmed below 1.5m the diameter is taken as that just above the root flare
Spread (m)	Crown Spread, radius estimated in metres
Canopy height (m)	Canopy height estimated in metres above ground level
Physiological Condition	Good, Fair, Poor, Dead
Age Class	Y – Young, SM – Semi mature, EM – Early Mature, M – Mature, OM - Over mature, V – Veteran
Useful Life Expectancy (years)	<10, 10-20, 20-40, 40+
BS Categorization	See Cascade Appendices 2

TREE SURVEY SCHEDULE

Site:

Project Schedule Ref:

Drawing Reference:

Survey date:

Land of Southampton Road, Alderbury

JSL4528_700

JSL4528_750

15.08.22 - 19.08.22

Surveyor:

Status:

Revision:

Notes:

S.Kowalczyk

For Planning

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Stem dia. (mm) for trees with 6 or more stems are estimated averages.

FSB - First Significant Branch. (W) - Direct of branch.

Y-Young, SM-SemiMature, EM-EarlyMature, M-Mature, OM-OverMature, V-Veteran



Ref. no	Species	Height (m)	Ht. Can.	Crown spread (m)				Canopy area (sqm)	Stem dia. (mm)	Stem no. at 1.5m	FSB Hgt	Age class	Structural Condition	General Observations	Management Recommendations	Estimated remaining contribution (yrs)	Tree Quality Category (BS5837)
				N	S	E	W										
T1	Quercus robur (Common Oak)	10	7	7	7	5	7	132	1,000	1	7(W)	OM	Poor	Off site tree. Poor shape & form. Low vitality. Declining. Not Plotted on original survey. Decay present on stem. Fungal brackets visible on stem. 75% of canopy is dead. Canopy has been reduced significantly back to stumps of approx. 20cm diameter. Most of the remaining stems are dead with no signs of reactive growth at stumps or within central canopy.		<10	U
T2	Quercus robur (Common Oak)	20	7	10	10	10	10	314	950	1	7(E)	M	Good	Access to stem limited due to dense bramble. Appears to be in overall good health. Large pruning wounds to stem have occluded well. 3 Stems from 5m. Private boundary brick wall within 2m of stem to west. Wall is damaged most likely from root growth. Tree ownership is unclear.		40+	A1
T3	Pinus nigra (Austrian Pine)	25	3	12	12	12	12	452	1,250	1	7(E)	M	Good	Offsite tree growing in private garden. Access to stem not possible. Stem covered in ivy up to 10m. At 10m the main stem divides in to 3 significant leaders. Tight compression forks at the divide are evident although obscured by ivy. Tree leans eastwards over site. Lowest branch hangs over site approx. 3m from ground level.	Crown lift overhanging limbs on east side to create clearance of up to 6m. Recommend to owner of tree that ivy is severed and a new inspection of the stem forks is undertaken by an arboricultural consultant.	40+	A1
T4	Fraxinus excelsior (Ash)	5	2	2	2	2	2	13	100	1	2(E)	Y	Fair	Not plotted on original survey. Estimated values due to access. Young sapling tree grown out from hedgerow. Ownership is unclear as stem is swamped in bramble.		10+	C2
T5	Crataegus monogyna (Hawthorn)	5	2	2	2	2	2	13	100	1	2(E)	Y	Fair	Not plotted on original survey. Estimated values due to access. Young sapling tree grown out from hedgerow. Ownership is unclear as stem is swamped in bramble.		10+	C2
T6	Betula pendula (Silver Birch)	12	2	5	5	5	5	79	300	1	2(E)	EM	Good	Off site tree. Not plotted on original survey. Estimated values due to access. Stem is located behind private panel fencing. Appears to be in good health with no obvious major defects.		20+	B2
T7	Fraxinus excelsior (Ash)	16	7	4	7	7	7	121	400	1	7(E)	M	Fair	Off site tree. Estimated values due to access. Unable to inspect stem due to ivy. Canopy appears to be in fair health. Minor defolating of new shoots typical of bird damage. Some epicormic growth within canopy but no obvious signs of Ash dieback disease.	Recommend that owner of tree severs ivy and re-inspects tree.	20+	B2
T8	Fagus sylvatica (Beech)	16	7	7	3	7	7	110	400, 250	2	7(E)	M	Good	Off site tree. Estimated values due to access. Unable to inspect stem due to ivy. Canopy appears to be in good health. Twin stem from ground level. Clear stem up to 7m due to crown lifting by owner.		20+	B2
T9	Quercus robur (Common Oak)	20	2	13	13	13	13	531	1,000	1	4(NE)	M	Good	Off site tree. Estimated values due to access. Major deadwood in crown. Canopy appears to be in good health. Fine specimen tree.	Crown lift overhanging limbs to ne to create 5m clearance above ground.	20+	A1
W10	Betula pendula (Silver Birch)	20	2	13	13	13	13	531	100 - 1000	2	4(NE)	M	Good	Large woodland group going westwards. Boundary fence limiting access. Stems located behind fence. Trees over sail fence line by approx. 10m Mostly birch at 250mm dbh on woodland edge. Large goat willow in NE corner of woodland where it meets field boundary group going eastwards.	Crown lift overhanging limbs to create 5m clearance above ground.	20+	A1
T11	Salix caprea (Goat Willow)	12	1	8	8	8	8	201	300, 200, 200, 200	4	1(E)	M	Fair/Poor	Estimated values due to access. Stem set behind wire fence within dense undergrowth. Over sails wire fence significantly. Multi stemmed from ground level. Poor unions with compression forks prone to failure. Main limb overhanging to east has split but remains attached.	Remove overhanging branches by reducing back to fence line to reduce likelihood of failure and reduce overhang.	10+	C2
T12	Quercus robur (Common Oak)	20	2	10	10	10	10	314	1,000	1	4(NE)	M	Good	Off site tree. Estimated values due to access. Major deadwood in crown. Canopy appears to be in good health. Fine specimen tree located within hedgerow.		40+	A1
T13	Quercus robur (Common Oak)	20	2	10	10	10	10	314	1,000	1	4(NE)	OM	Dead	Dead. Off site tree. Estimated values due to access. Standing as valuable deadwood habitat. Access to stem to possible due to vegetation data estimated.	Retain as is if target area beneath remains clear of people or structure. If target is increased - reduce deadwood canopy down to 5m habitat stump.	<10	U
T14	Quercus robur (Common Oak)	16	3	8	8	8	8	201	400, 400, 400, 400	4	4(S)	M	Fair	Growing on north side of ditch. Multi stemmed from ground level. Broad spreading canopy. Broken limb on south side. Access to stem to possible due to vegetation data estimated.	Remove broken limb on south side.	20+	B2
T15	Quercus robur (Common Oak)	20	7	8	8	6	1	88	500	1	7(S)	M	Fair	Growing on north side of ditch. Part of linier group. Good quality tree as part of group. Canopy bias to east due to group pressure. Access to stem to possible due to vegetation data estimated.		20+	B2

Note: This survey is based on a brief visual inspection from the ground.
It is not intended as a full arboricultural inspection.

Ref. no	Species	Height (m)	Ht. Can.	Crown spread (m)				Canopy area (sqm)	Stem dia. (mm)	Stem no. at 1.5m	FSB Hgt	Age class	Structural Condition	General Observations	Management Recommendations	Estimated remaining contribution (yrs)	Tree Quality Category (BS5837)
				N	S	E	W										
T16	Quercus robur (Common Oak)	17	4	8	8	2	2	50	350, 350	2	4(S)	M	Fair	Growing on north side of ditch. Part of linier group. Heavily asymmetrical canopy due to group pressure. Would not stand well as individual. Access to stem to possible due to vegetation data estimated.		20+	C2
T17	Quercus robur (Common Oak)	17	4	4	6	2	2	31	350, 350	2	4(S)	M	Poor	Growing on north side of ditch. Part of linier group. Heavily asymmetrical canopy due to group pressure. Sparse leaf cover. Declining. Would not stand well as individual. Access to stem to possible due to vegetation data estimated.		10+	C2
T18	Quercus robur (Common Oak)	17	4	4	10	2	2	44	350, 350 300	3	4(S)	M	Poor	Growing on north side of ditch. Part of linier group. Heavy asymmetrical canopy due to group pressure, heavy bias southwards. Lacking central leader. Would not stand well as individual. Access to stem to possible due to vegetation data estimated.		20+	B2
T19	Quercus robur (Common Oak)	20	5	4	7	2	2	35	450	1	5(S)	M	Fair	Growing on north side of ditch. Part of linier group. Reasonable upright form. Reliant on surrounding trees. Access to stem to possible due to vegetation data estimated.		20+	B2
T20	Quercus robur (Common Oak)	20	5	4	4	3	2	31	450	1	5(S)	M	Fair	Growing on north side of ditch. Part of linier group. Reasonable upright form. Reliant on surrounding trees. Access to stem to possible due to vegetation data estimated.		20+	C2
T21	Quercus robur (Common Oak)	10	5	4	4	4	4	50	350	1	5(S)	M	Good	Growing on north side of ditch. Part of linier group. Good upright form. Would stand as individual tree. Good long term potential. Access to stem to possible due to vegetation data estimated.		20+	B2
T22	Quercus robur (Common Oak)	16	3	7	8	7	7	165	300,300, 300,300	4	4(S)	M	Good	Growing on north side of ditch. Part of linier group. Multi stemmed from 1m with satisfactory unions. Would stand as individual tree. Good long term potential. Access to stem to possible due to vegetation data estimated.		20+	A2
T23	Quercus robur (Common Oak)	16	7	7	7	6	4	110	450	1	7(S)	M	Good	Growing on north side of ditch. Part of linier group. Co-dominant stem from 3m with satisfactory union. Would stand as individual tree. Good long term potential. Access to stem to possible due to vegetation data estimated.		20+	B2
T24	Betula pendula (Silver Birch)	14	4	1	5	4	2	28	300	1	4(S)	M	Poor	Growing on south side of ditch. Canopy heavily bias to south. Stem leaning south. Part of linier group. Access to stem to possible due to vegetation data estimated. Would not stand as individual.		10+	C2
T25	Betula pendula (Silver Birch)	14	4	4	5	4	1	35	200, 200, 200, 200, 200	5	4(S)	M	Poor	Late stage of decline. Mostly dead.	Remove tree.	<10	U
G26	Quercus robur (Common Oak)	17	3	3	3	3	3	28	450	1	5(S)	M	Good	Linier group of mature trees with semi-mature undergrowth in and between larger trees. Existing ditch running through group along a field boundary line. Younger trees are generally etiolated and/or suppressed due to group nature. As a whole, the group provides a good quality landscape buffer.		40+	A2
T27	Quercus robur (Common Oak)	16	3	7	7	6	4	110	450	1	3(S)	M	Good	Growing on north side of ditch. Part of linier group along boundary. Separated into smaller group of two. Good long term potential. Access to stem to possible due to vegetation data estimated.		20+	B2
T28	Quercus robur (Common Oak)	16	3	7	7	6	2	88	450	1	3(S)	M	Good	Growing on north side of ditch. Part of linier group along boundary. Separated into smaller group of two. Good long term potential. Access to stem to possible due to vegetation data estimated.		20+	B2
T29	Quercus robur (Common Oak)	16	3	7	7	4	7	121	400	1	3(S)	M	Good	Growing on north side of ditch. Part of linier group along boundary. Separated into smaller group of two. Good long term potential. Access to stem to possible due to vegetation data estimated.		20+	B2
T30	Quercus robur (Common Oak)	16	3	5	7	2	5	66	400	1	3(S)	M	Good	Growing on north side of ditch. Part of linier group along boundary. Separated from group to west. Good long term potential as part of group. Would not stand as an individual. Access to stem to possible due to vegetation. Data estimated.		10+	C2
T31	Quercus robur (Common Oak)	16	3	5	7	3	3	57	400	1	3(S)	M	Fair	Growing on north side of ditch. Part of linier group along field boundary. Separated from group to west. Good long term potential as part of group. Would not stand as an individual. Access to stem to possible due to vegetation. Data estimated.		10+	C2
T32	Quercus robur (Common Oak)	16	3	6	3	3	3	42	400	1	3(S)	M	Fair	Growing on north side of ditch. Part of linier group along field boundary. Separated from group to west. Good long term potential as part of group. Would not stand as an individual. Access to stem to possible due to vegetation. Data estimated.		10+	C2

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Ref. no	Species	Height (m)	Ht. Can.	Crown spread (m)				Canopy area (sqm)	Stem dia. (mm)	Stem no. at 1.5m	FSB Hgt	Age class	Structural Condition	General Observations	Management Recommendations	Estimated remaining contribution (yrs)	Tree Quality Category (BS5837)
				N	S	E	W										
T33	Quercus robur (Common Oak)	16	3	6	9	7	7	165	650	1	3(S)	M	Good	Growing on north side of ditch. Part of linier group along field boundary. Separated from group to west. Good long term potential. By far the largest and best quality tree within this section of group. Slight stem lean SE. Access to stem to possible due to vegetation. Data estimated.		20+	B2
T34	Quercus robur (Common Oak)	10	3	6	2	2	2	25	650	1	3(N)	M	Good	Growing on north side of ditch. Part of linier group. Canopy bias north. Suppressed by adjacent trees in group. Location estimated.		20+	C2
T35	Acer pseudoplatanus (Sycamore)	10	3	5	5	3	3	47	200, 200, 200, 200	4	3(N)	EM	Fair	Growing on north side of ditch. Part of linier group. Multi stemmed from ground level. No particular merit as individual.		10+	C2
T36	Quercus robur (Common Oak)	16	3	7	8	4	4	94	300, 300	2	3(N)	EM	Fair	Growing on north side of ditch. Part of linier group. Twin stemmed from ground level. Suppressed canopy on west and east side. No particular merit as individual.		20+	B2
T37	Quercus robur (Common Oak)	16	3	3	3	3	3	28	200	1	3(N)	SM	Fair	Growing on north side of ditch. Part of linier group. Etiolated form. No particular merit as individual.		10+	C2
T38	Quercus robur (Common Oak)	16	3	7	7	7	5	132	650	1	3(S)	M	Good	Growing on north side of ditch. Part of linier group. Good long term potential. Good quality tree within group. Access to stem to possible due to vegetation. Data estimated.		20+	B2
G39	Salix caprea (Goat Willow)	10	1	3	3	3	3	28	100	1	1(S)	SM	Fair	Group of approx. 100 closely spaced stems of willow separated from hedgerow going south.		10+	C2
G40	Salix caprea (Goat Willow)	10	1	3	3	3	3	28	100	1	1(S)	SM	Fair	Group of approx. 25 closely spaced stems of willow separated from hedgerow going south.		10+	C2
H73	Salix caprea (Goat Willow)	10	1	3	3	3	3	28	100	1	1(S)	SM	Fair	Unmanaged outgrown hedgerow.		10+	C2
T41	Crataegus monogyna (Hawthorn)	6	0	3	3	3	3	28	200	1	0(E)	OM	Poor	Not Plotted on original survey. Estimated values due to access. Tree covered in bramble providing valuable habitat for birds.		<10	U
T42	Crataegus monogyna (Hawthorn)	6	0	2	2	2	2	13	200	1	0(E)	OM	Fair/Poor	Not Plotted on original survey. Estimated values due to access. Small tree growing in field boundary.		10+	C2
T43	Quercus robur (Common Oak)	7	2	7	7	2	7	99	400	1	2(N)	EM	Fair	Estimated values due to access. Small tree growing in field boundary to allotments. Growing together with adjacent tree.		20+	B2
T44	Quercus robur (Common Oak)	7	2	7	7	6	2	88	400	1	2(N)	EM	Fair	Estimated values due to access. Small tree growing in field boundary to allotments. Growing together with adjacent tree.		20+	B2
T45	Quercus robur (Common Oak)	12	0	7	7	7	7	154	500	1	0(N)	EM	Fair	Estimated values due to access. Growing on field boundary to allotments. Good individual specimen with no obvious major defects.		20+	A2
T46	Acer campestre (Field Maple)	12	0	5	5	5	5	79	450	1	0(N)	EM	Fair	Not Plotted on original survey. Estimated values due to access. Growing within dense hedgerow on field boundary to allotments. Good individual specimen with no obvious major defects.		20+	B2
H47	Salix caprea (Goat Willow)	7	1	3	3	3	3	28	100	1	1(S)	M	Good	Unmanaged outgrown hedgerow providing good screening and habitat value.		10+	C2
T48	Acer rubrum (Red Maple)	12	0	6	6	6	6	113	450	1	0(N)	EM	Good	Not Plotted on original survey. Estimated values due to access. Growing within private garden. Good individual specimen with no obvious major defects.		20+	B2
T49	Liriodendron tulipifera (Tulip Tree)	15	0	6	6	6	6	113	400	1	0(N)	EM	Good	Not Plotted on original survey. Estimated values due to access. Growing within private garden. Good individual specimen with no obvious major defects when viewed from a distance.		40+	A2
T50	Tilia cordata (Small-leaved Lime)	15	0	2	2	2	2	13	400	1	0(N)	EM	Poor	Off site tree. Estimated values due to access. Within private garden. Reduced down to ~5m stump. No canopy remaining.		<10	C2
T51	Fraxinus excelsior (Ash)	15	3	8	8	8	8	201	200, 200, 200, 200	5	3(W)	EM	Fair	Estimated values due to access. Growing within boundary fence. Multi stemmed from ground level. Very early stages of Ash dieback noted in tips.		20+	C2
T52	Alnus glutinosa (Common Alder)	10	0	6	6	6	6	113	250	1	0(W)	EM	Fair	Estimated values due to access. Dense boundary group made up of many closely spaced stems. All with good healthy leaf cover and provide good screening to private properties.		10+	C2
T53	Alnus glutinosa (Common Alder)	12	4	6	6	6	6	113	350, 350, 350	3	4(W)	EM	Fair	Off site tree. Not Plotted on original survey. Estimated values due to access. Growing within private garden. Tri-stemmed from ground level. Has been topped previously.		20+	C2
T54	Betula pendula (Silver Birch)	12	4	4	4	4	4	50	300	1	4(W)	EM	Fair	Off site tree. Not Plotted on original survey. Estimated values due to access. Growing within private garden. Has been topped previously.		20+	C2

Note: This survey is based on a brief visual inspection from the ground.
It is not intended as a full arboricultural inspection.

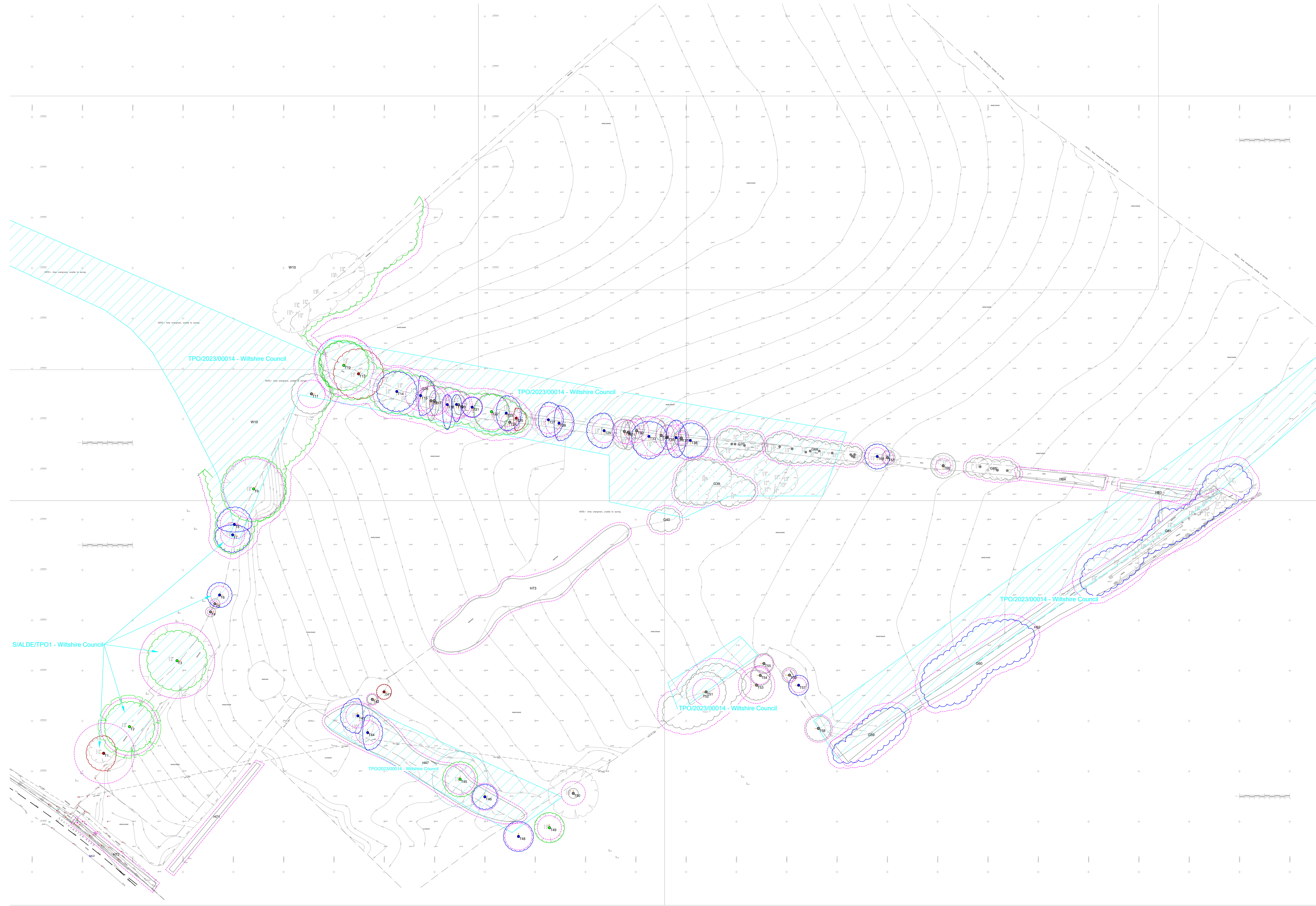
Ref. no	Species	Height (m)	Ht. Can.	Crown spread (m)				Canopy area (sqm)	Stem dia. (mm)	Stem no. at 1.5m	FSB Hgt	Age class	Structural Condition	General Observations	Management Recommendations	Estimated remaining contribution (yrs)	Tree Quality Category (BS5837)
				N	S	E	W										
T55	Pinus sylvestris (Scots Pine)	12	4	4	4	4	4	50	300	1	4(W)	EM	Poor	Off site tree. Not Plotted on original survey. Estimated values due to access. Growing within private garden. Has been topped previously.		10+	C2
T56	Alnus glutinosa (Common Alder)	10	4	3	3	3	3	28	200	1	4(W)	SM	Fair	Not Plotted on original survey. Reasonable tree with no obvious major defects. Good long term potential.		10+	C2
T57	Alnus glutinosa (Common Alder)	10	4	4	4	4	4	50	250	1	4(W)	SM	Fair	Not Plotted on original survey. Reasonable tree with no obvious major defects. Good long term potential.		10+	B2
T58	Alnus glutinosa (Common Alder)	10	2	5	5	5	5	79	300, 350	2	2(W)	M	Fair	Off site tree. Not Plotted on original survey. Estimated values due to access. Reasonable tree growing from private garden on boundary line.		10+	C2
G59	Quercus robur (Common Oak)	15	2	7	7	7	7	154	400	1	2(W)	M	Good	Not Plotted on original survey. Estimated values due to access. Reasonable group of Ash and Oak. Growing on boundary line.		20+	B2
G60	Quercus robur (Common Oak)	15	2	7	7	7	7	154	500	1	2(W)	M	Good	Not Plotted on original survey. Estimated values due to access. Reasonable group of good quality Oak. Growing on boundary line.		20+	B2
G61	Quercus robur (Common Oak)	15	2	7	7	7	7	154	350	1	2(W)	M	Good	Estimated values due to access. Reasonable group of predominantly Oak. Growing on boundary line with hedgerow beneath.		20+	B2
H62	Quercus robur (Common Oak)	15	2	3	3	3	3	28	150	1	2(W)	M	Good	Estimated values due to access. Mixed unmanaged hedgerow growing beneath high canopy in places. Provides good habitat as green corridor.		20+	C2
H63	Quercus robur (Common Oak)	15	2	3	3	3	3	28	100	1	2(W)	M	Poor	Estimated values due to access. Poor quality hedgerow primarily made up of bramble.		20+	C2
H64	Quercus robur (Common Oak)	15	2	3	3	3	3	28	100	1	2(W)	M	Poor	Estimated values due to access. Poor quality hedgerow primarily made up of bramble.		20+	C2
G65	Salix caprea (Goat Willow)	10	1	3	3	3	3	28	100	1	1(S)	SM	Fair	Group of approx. 25 closely spaced stems of willow growing as part of a field boundary hedgerow.		10+	C2
T66	Salix caprea (Goat Willow)	10	1	5	5	5	5	79	250	1	1(S)	SM	Fair	Individual willow growing from boundary hedgerow.		10+	C2
T67	Quercus robur (Common Oak)	7	3	3	3	3	2	24	200	1	3(S)	M	Fair	Growing on north side of ditch. Part of linier group. Good long term potential as part of group. Access to stem to possible due to vegetation. Data estimated.		10+	C2
T68	Quercus robur (Common Oak)	7	3	5	5	5	5	79	300	1	3(S)	M	Fair	Growing on north side of ditch. Part of linier group. Good long term potential as part of group. Would stand as an individual. Access to stem to possible due to vegetation. Data estimated.		10+	B2
G69	Salix caprea (Goat Willow)	10	1	3	3	3	3	28	100	1	1(S)	SM	Fair	Group of approx. 25 closely spaced stems of willow growing as part of field boundary hedgerow.		10+	C2
G70	Quercus robur (Common Oak)	10	1	3	3	3	3	28	100	1	1(S)	SM	Fair	Group of approx. 5 stems growing as part of field boundary hedgerow.		10+	C2
H71	Crataegus monogyna (Hawthorn)	4	1	2	2	2	2	13	100	1	1(S)	M	Fair	Clipped mixed species hedgerow with dense bramble growing on private boundary line.		10+	C2
H72	Crataegus monogyna (Hawthorn)	7	0	2	2	2	2	13	100	1	0(S)	M	Fair	Clipped sides hedgerow with dense bramble growing on private boundary line. Tops have been left to grow out. Towards east end same Ash stems have grown out and developed canopies.		10+	C2

Note: This survey is based on a brief visual inspection from the ground.
It is not intended as a full arboricultural inspection.

Figures

JSL4528_700: TREE CONSTRAINTS PLAN

JSL4528_710: TREE PROTECTION & REMOVAL PLAN



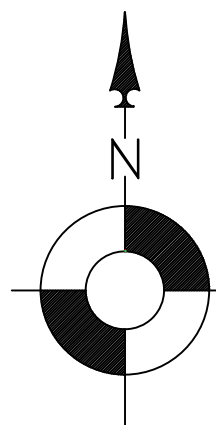
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Key

- Survey boundary.
- Tree with numbered reference.
Canopy spread and coloured BS5837:2012 tree quality category as shown below.
- Vegetation group with numbered reference.
Canopy extents and coloured BS5837:2012 tree quality category as shown below.
- Hedge with numbered reference.
Canopy extents and coloured BS5837:2012 tree quality category as shown below.
- Woodland with numbered reference.
Canopy extents and coloured BS5837:2012 tree quality category as shown below.
- BS 5837:2012 Tree Quality Categories - Table 1
 - Category A - High quality
 - Category B - Moderate quality
 - Category C - Low quality
 - Category U - Unsuitable for retention
- Maximum canopy spread of mature tree estimated as a displacement of current canopy
- Direction of first significant branch
- Root protection area (RPA)
Calculated in accordance with Section 4.6 - BS5837:2012
- Tree protected by Tree Preservation Order No.5/ALDE/TPO1.

NOTES:

- Refer to RPS Tree Survey Report & Schedule for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- Plan produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'.
- Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period, generally, although not restricted to, March - August inclusive.
- Survey based upon topographic survey produced by STS - Site Team Services, 2020/1, Sept 2021.



C	New TPO info added	SK	DC	22.08.24
B	T1 relocated	DC	DC	08.24
A	TPO details added	DC	DC	09.22
Rev	Description	By	CB	Date



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Client **Formula Land (Alderbury) Ltd**

Project **Southampton Rd, Alderbury**

Title **Tree Constraints Plan**

Status **For Planning** Drawn By **SK** PM/Checked by **DC**

Job Ref **JSL4528** Scale @ **A0** 1:500 Date Created **Aug 2022**

RPS Drawing / Figure Number **700** Rev **C**

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0m 10 20 30 40 50m
SCALE 1:500



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Key

- Survey boundary.
- Tree with numbered reference. Canopy spread and coloured BS5837:2012 tree quality category as shown below.
- Vegetation group with numbered reference. Canopy extents and coloured BS5837:2012 tree quality category as shown below.
- Hedge with numbered reference. Canopy extents and coloured BS5837:2012 tree quality category as shown below.
- Woodland with numbered reference. Canopy extents and coloured BS5837:2012 tree quality category as shown below.

BS 5837:2012 Tree Quality Categories - Table 1

- Category A - High quality
- Category B - Moderate quality
- Category C - Low quality
- Category U - Unsuitable for retention

- Direction of first significant branch
- Root protection area (RPA) Calculated in accordance with Section 4.6 - BS5837:2012
- Tree protected by Tree Preservation Order No.S/ALDE/TPO1 & TPO/2023/00014, Administered by Wiltshire Council.
- Tree to be removed with numbered reference. Canopy spread and BS5837:2012 tree quality category.
- Temporary protective fencing in accordance with Section 6.2 - BS5837:2012. See inset details for example details.

NOTES:

- Refer to RPS Tree Survey Report & Schedule for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- Plans produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'.
- Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period; generally, although not restricted to, March - August inclusive.
- Survey based upon topographic survey provided by The Client.
- Pedestrian/vehicular emergency access routes to be maintained at all times.
- All protective fencing to be completed and approved by LPA / CA prior to commencement of any site works.
- All works to conform with requirements of:
 - BS 5837:2012 - Tree Works
 - BS 5837:2012 - Trees in relation to design, demolition and construction
 - NAUG 4 - Guidelines for Utility Services in Proximity to Trees

Rev	Description	By	CB	Date
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MAKING COMPLEX EASY

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Client **Formula Land (Alderbury) Ltd**

Project **Land East of Southampton Rd, Alderbury**

Title **Tree Protection & Removal Plan**

Status	Drawn By	PM/Checked by
DRAFT	SK	DC
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Appendix A

Survey Methodology

General

This report was authored by Stefan Kowalczyk, Principal Arboricultural Consultant of RPS and authorised by David Cox, Director of Landscape and Arb, of RPS.

The report and survey were carried out in general accordance with the requirements set out in BS 5837:2012 "Trees in Relation to Design, Demolition and Construction – Recommendations".

Trees were inspected from ground level during a site visit. All data was recorded electronically within a Axciscape 4.02 project and then upon return to the office it was imported into an MS Access database. Individual tree numbers and locations were plotted by eye on to a drawing at the time of the survey. Tree positions were then related to a Topographical survey of the site provided, where not shown on the topographical survey tree positions have been plotted by eye only and require confirmation.

Trees were not climbed or inspected below ground level and inaccessible trees will have best estimates made about the location, physical dimensions and characteristics.

The locations of the trees were based upon topographic survey of the site provided by the client.

The survey assesses individual trees and groups of trees for quality and benefits within the context of proposed development. The quality of each tree or group of trees has been recorded by allocating it to one of four categories as described the table below. These categories have been differentiated on the Tree Constraints Plan (JSL4528_700).

The survey information was recorded on the attached schedule (Table 1) in general accordance with the guidance contained within Section 4 of BS 5837:2012 "Trees in Relation to Design, Demolition and Construction - Recommendations".

Tree Constraints Plan

The Tree Constraints Plan (see drawing JSL4528_700) is designed to show the influence that the trees have upon the site by virtue of their size and position. The plan seeks to act as a design tool that shows both the above and below ground constraints presented by the trees.

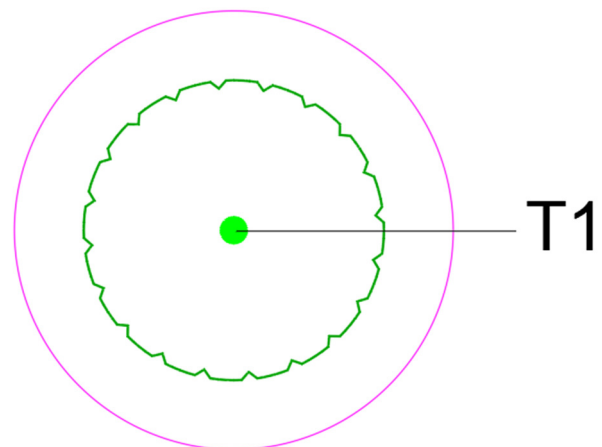
The information provided within this section of the report is to assist in the interpretation of the Tree Constraints Plan and aims to ensure that those trees selected for retention can be successfully integrated within the proposed development.

It should be noted that some of the tree positions shown on the plan have been plotted using the provided topographical survey and others by eye to an Ordnance Survey base map and as such should be considered to be of a provisional nature.

Root Protection Areas

Root Protection Areas for each tree and group of trees surveyed have been determined in accordance with BS5837:2012 and a schedule of Root Protection Areas is attached to this report as Table 2.

As shown to the right, Root Protection Areas (RPA's) for the trees, where no significant constraints to root development are considered to be present, have been plotted onto the Tree Constraints Plan as circles, with the tree located centrally, extending to encompass the area of ground, and thus the rootable soil volume, required for protection.

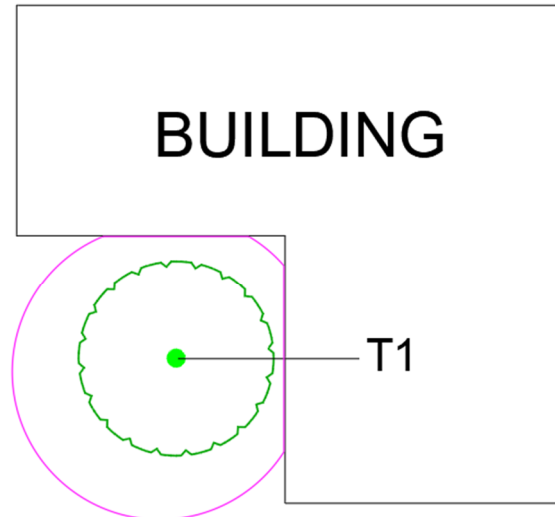


REPORT

Where tree root spread is considered to have been influenced by site conditions the trees RPA's have been plotted to the Tree Constraints Plan as a polygon. The plotted polygon is of the **same area** as it would be as a circle and its shape reflects an arboricultural assessment of likely root distribution.

An example of a polygonal RPA, considered appropriate due to the presence of a building in close proximity to a tree, is shown to the right.

Where possible all development, including new hard landscaping, shall be situated outside of the retained trees designated Root Protection Areas.



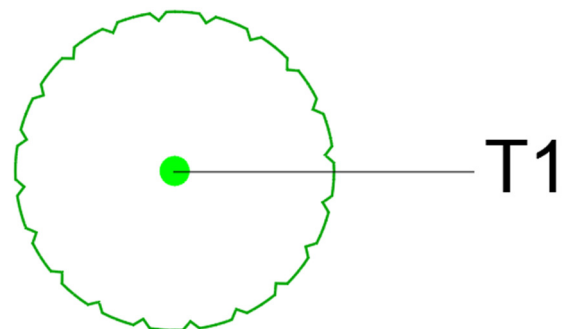
Existing Canopy Spreads

The existing canopy spreads of the trees on site are shown on the Tree Constraints Plan as depicted here.

The current spread of the tree is a constraint due to its dominance, size and movement in strong winds.

It will typically be unacceptable to design any built development within the current spread of a tree.

Where built development is proposed in close proximity to existing trees consideration should be given to the amount of working space required to allow its construction.



Canopy Height / Clearance

The height and growth direction of the lowest branch of each tree is recorded in the Tree Data Schedule contained within this report as Table 1, the lowest branch height of a tree is shown on the Tree Constraints Plan. Additionally, the vertical clearance of the trees canopy above ground level is recorded within the Tree Data Schedule.

The two figures can be used to inform the extent to which a trees crown may be at risk of damage during development as a result of vehicular or plant movements within the site and to assess the need for additional protective measures to be implemented to protect low branches.

In particular it should also be noted that where the Root Protection Areas for retained trees do not extend to the edge of existing canopy spreads it is possible that those parts of the trees extending beyond the RPA fencing may sustain damage during construction. Where this occurs, there are two primary options available to manage and minimise the potential for damage to tree canopies to occur during development and these may be used singularly or in combination. The first option is to create a Construction Exclusion Zone (CEZ), by the erection of protective fencing, around the full extent of the trees. The second is to undertake pre-development pruning works to the trees to reduce the potential for branch damage to occur.

Appendix B

BS5837 Cascade Chart for Tree Quality Assessment

REPORT

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>			Dark Red
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Light Green
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	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	Trees with material conservation or other cultural value	Mid Blue
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 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	Grey

Cascade chart for tree quality assessment

Appendix C

Tree Protection Barriers

Root Protection Area Barrier Details

Since trees are living organisms which interact with their immediate environment any changes made to their surroundings may have a bearing on that trees future. Developing a site will undoubtedly place any trees within close proximity under some level of stress, which could predispose them to infection. The aim of this method statement is to limit the amount of stress induced by introducing protection measures.

The most effective way of offering protection is by erecting protective barriers set at a distance from the tree stem using the methods given within BS 5837: 2012 Trees in Relation to Design, Demolition and Construction. Barriers should be braced and constructed to resist impacts; see Figures 1 & 2 below for barrier specifications. Barriers can be of an alternative specification to that within the BS5837:2012 provided it is approved by the Local Planning Authority Tree Officer.

Barriers should be erected before any works commence on site with the exception of recommended tree work. Areas of retained and future structure planting should be similarly protected.

All personnel should be made aware of the protected areas and instructed to keep them free of materials, waste and excess soil. Soil disturbance should be prohibited and travel of any kind, including foot traffic should also be excluded within the root protection area (RPA) unless previously agreed and adequate ground protection has been installed.

Where foot traffic is agreed within the RPA, single thickness scaffold boards laid over a compressible material on a geotextile or supported by scaffold should suffice. Where vehicular access through the RPA is agreed an engineer should be consulted to design adequate ground protection methods.

Suggested Barrier Specification (as per BS5837: 2012)

Figure 1

Figure 2 Default specification for protective barrier

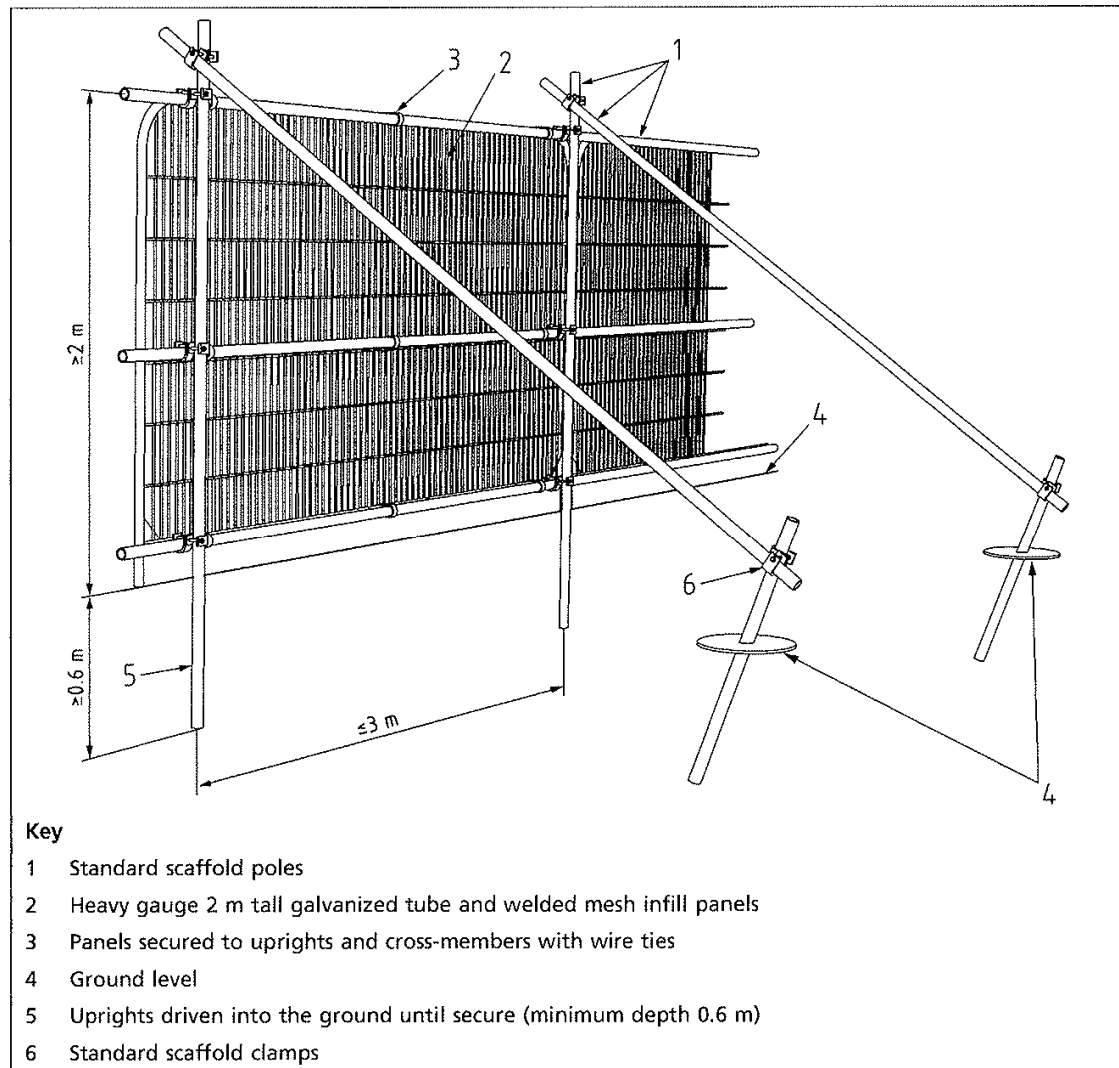
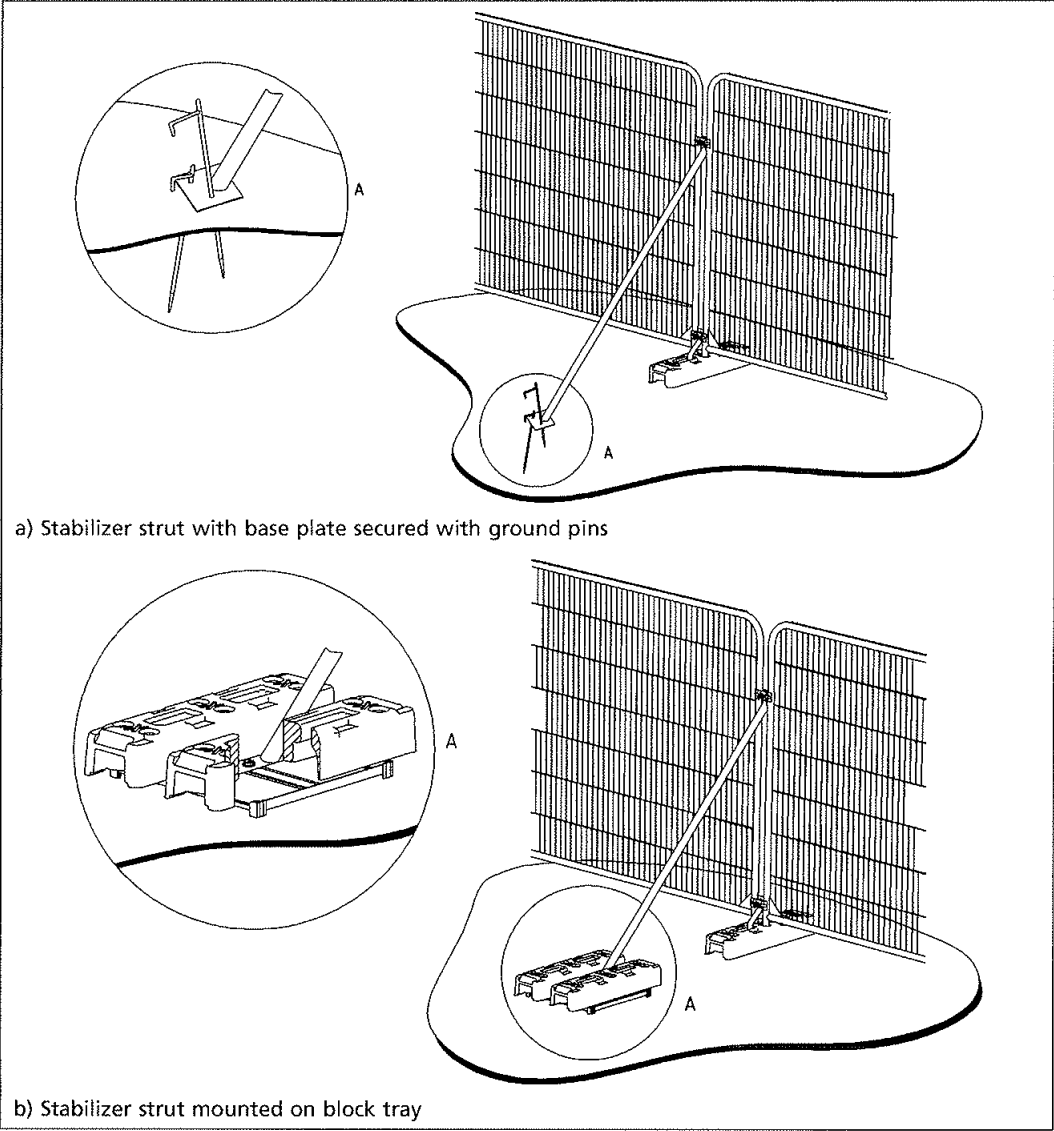


Figure 2.

Figure 3 Examples of above-ground stabilizing systems



Appendix D

Construction Exclusion Signage – Example



Appendix E

Hard Surface Installation Methodology

The following methodology sets out the requirements and stages in construction of new hard surfaces in relation to existing trees.

This methodology is not meant to be considered as a specification and whilst examples of products that meet the arboricultural requirements for the installation of hard surfacing adjacent to trees are given the final construction detail must be designed by a suitably qualified and experienced engineer, whilst ensuring the arboricultural requirements are met, to ensure that the finished surface is fit for purpose.

In this respect it should be noted that suppliers of these systems (cellular confinement systems), may offer a design service to develop site specific solutions.

Arboricultural Requirements

Wherever it is intended to undertake demolition or construction operations within the Root Protection Areas of trees precautions must be taken to maintain the condition and health of trees root systems.

In particular:

- Works shall be conducted in such a manner as to prevent physical damage to roots during demolition or construction, such as soil compaction or root severance.
- Provision for water and oxygen to reach the roots must be made and the soil structure must not be disturbed.
- Provision must be made for future root growth and precautions taken to ensure that such root growth does not cause unacceptable levels of damage to the finished construction.
- The soil must not be compacted and soil bulk density must be maintained at suitable levels for tree root growth and function. In this respect a soil bulk density of over 1.8g/cm³ will impede root growth and function.

To achieve the above requirements for tree root growth and function the surface shall be designed so that:

- No excavation is required for their installation; to ensure that physical root damage does not occur.
- The surface can be installed without compaction of the existing soils; thus ensuring damage to the soil structure does not occur.
- The surface is permeable; thus ensuring that oxygen and water can reach the root system and that CO₂ can diffuse vertically out of the soil as high concentrations can cause root suffocation.

There are various methods of creating such a surface however one that is commonly in use and is therefore recommended here is the use of a three dimensional cellular confinement system to provide for load

suspension above the existing soil grade and reducing vertical loads on the underlying soils. One such product is CellWeb produced by Geosynthetics.

Prior to installation of any new surfacing the following factors shall be considered:

- The exact location of the area to receive the special surfacing shall be determined.
- The area should be investigated to identify any existing services.
- The area shall be fenced off with tree protection fencing until installation of the special surfacing is to take place. Such installation should generally be phased to occur following substantial completion of the development.
- The final surface shall be decided upon, the surface must be permeable and several options for final surfacing are considered in the following section.

Methodology for Surface Installation

Prior to the installation of the new surface, existing ground cover and surface vegetation should be killed using an appropriate herbicide.

Specialist advice should be sought in order to determine the most appropriate herbicide to use due to the potential for leaching through soils and the potential impacts that this will have on retained vegetation.

As an alternative or addition to herbicide treatment the existing surface vegetation may be carefully removed by using hand tools.

All dead organic matter is to be removed by hand following herbicide treatment to prevent anaerobic conditions, as a result of the decomposition of dead vegetation, occurring.

All major protrusions such as rocks shall be removed by hand and all tree or shrub stumps from removed vegetation shall be ground out to minimise ground disturbance.

The soil surface **must not** be skimmed or stripped to achieve a level surface and where necessary major hollows shall be filled using a granular fill, such as no-fines gravel, washed aggregate or cobbles, to achieve a level surface.

In some cases it may be appropriate to consider the removal of the top layers of soil by non mechanical means to achieve desired levels, establish rooting patterns and potentially provide for some embedding of the new surface into the existing ground level. Such works shall be completed using pneumatic soil excavation techniques and the works must be supervised by an Arboricultural consultant. The need for such works to occur shall be considered during the detailed design of the surface.

Following surface preparation the soil shall be covered by a permeable geotextile to prevent the cellular confinement fill from migrating into the existing soils.

The geotextile layer shall be laid with overlaps of 300mm beyond the edge of the proposed construction and shall be temporarily retained with pins, stakes or weights.

The cellular confinement system shall then be installed and fixed in position in accordance with the manufacturer's recommendations.

The cellular confinement system shall then be filled with the specified aggregate in accordance with the manufacturer's recommendations – Appendix 5. All works involved in the filling of the system with aggregate must be completed by hand and be supervised by the site supervisor.

The infill aggregate shall then be rolled or whacked to ensure cohesion of the granular fill with the cellular confinement system.

The desired finished surface shall then be installed. This shall be permeable and gas porous. Options for the type of finished surface are:

- Washed gravel – This retains porosity unless excessively consolidated and will be particularly useful where the final surface is not level. However it may not be suitable in areas with high pedestrian and vehicular passage. If gravel is used, this shall be distributed in a 75mm layer over the exposed infill aggregate.
- Paving slabs / brick paviours – These shall be laid dry jointed on a bed of sharp sand to allow air and moisture to permeate. Specialist slabs and paviours with inbuilt infiltration holes may be used.
- Tarmacadam – This shall not be used where it will cover over 20% of a trees Root Protection Area.

Following completion of the hard surface protective fencing shall be erected around the trees until the completion of development.

Appendix F

Arboricultural Glossary

Abiotic Factors - Non-living factors of the environment, including temperature & wind.

Age-class - A general classification of the tree into either - young, semi-mature/maturing, mature, over-mature, or senescent.

Apical Bud/Shoot – The apical bud, also known as the leading shoot, is responsible for shoot extension and is dominant.

Apical Dominance – A singular, leading shoot remains dominant.

Arboreal - In connection with, or in relation to, trees.

Arboriculturist – Person who has, through relevant education, training and experience, gained recognised qualifications and expertise in the field of trees in relation to construction.

Arboricultural Implications Assessment (AIA) – Study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Arboricultural Method Statement (AMS) – Methodology for the implementation of any aspect of development that has the potential to result in the loss of or damage to a tree. Note The AMS is likely to include details of an on-site tree protection monitoring regime.

Biotic factors - Living factors. For example, animals and pathogens.

Bottle Butt – Term used to describe shape of stem base, usually associated with an internal defect – refer to 'Reaction Wood' below.

Branch union/junction - The point at which a branch joins a larger stem. Can be a point of weakness, especially in certain species.

Cambium - A lateral meristem (see below) in vascular plants located just beneath the bark responsible for secondary growth, e.g. production of annual growth rings.

Canker – A clearly defined area of dead and sunken or malformed bark, caused by bacteria or fungi. Can have a bearing on structural integrity of infected limb(s) depending on size and location.

Chlorosis/Chlorotic – Abnormal yellow or yellow-green coloration of usually green leaves. Essentially a reduction of chlorophyll levels often as a result disease or nutrient deficiency.

Co-dominant stems - A growth characteristic, where two or more stems of similar size grow from the same point. Can create an inherent weakness.

Compaction - The compressing & hardening of soil around tree root systems, due to vehicular/pedestrian use etc. Loss of pore space between soil granules limits water movement and gaseous exchange, and inhibits root growth.

Competent person – Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached

Note 1 A competent person understands the hazards and the methods to be implemented to eliminate or reduce the risks that can arise. For example, when on site, a competent person is able to recognise at all times whether it is safe to proceed.

Note 2 A competent person is able to advise on the best means by which the recommendations of this British Standard may be implemented.

Condition – Assessment based on a visual and professional view giving consideration to many factors such as tree health, structural integrity and suitability of its position.

Construction Exclusion Zone – Area based on the RPA (in m²), identified by an arboriculturist, to be protected by development, including demolition and construction work, by the use of barriers and/or ground protection fit for purpose to ensure the successful long-term retention of a tree.

Coppice - The method of managing trees by cutting the stems at between 1.0 inch and 1.0 foot from the ground level on a regular cycle, the cut stumps of the trees or shrubs are allowed to re-grow many new stems.

Crown spread - Gives distances between extreme limits of the crown and the stem, usually along the four compass points. Helps to show crown symmetry.

Crown Reduction – The removal of branch ends to reduce the extreme limits of a trees branch spread and height.

Crown Thin – The removal of selected branches within the crown to thin the internal branch structure.

D.B.H. - 'Diameter at Breast Height', an industry standard to gauge tree stem size and development. Within arboriculture, breast height is taken to be 1.5m above ground level.

Dieback - The reduction in crown vigour and extension growth progressing to death of distal parts; often associated with decline.

Epicormic/adventitious growth - New growth from dormant buds that can often form tenuous attachments. Although some species readily form such shoots, it can be an indication of stress.

Feathered Whip – Size of tree for planting, usually ranging from 1.25m to 2.5m in height.

Form - A general assessment of the shape and position of the tree within its' environment.

Frass – Debris such as bore dust left by wood boring insects.

Hanger – Term used to describe a branch that has become detached and is being supported by other branches. Can be a hazard to persons and property below.

Hazard Beam – After the loss of a distal part, a limb concentrates growth upwards creating adverse end weights that can render the limb susceptible to failure.

Heavy Standard – Size of tree for planting, usually above 3.5m in height.

Included bark – Growth characteristic usually caused when two or more stems/branches growing in close proximity 'fuse' together entrapping the bark from when the parts were separate in the middle, creating a structural weakness.

Meristem - The undifferentiated plant tissue from which new cells are formed, such as that at the tip of a stem or root.

Meristematic Disorder – A growth disorder caused by a disruption of the meristem (see above) from any of a number of biotic factors (see above). Manifests as growths such as 'Witches Brooms' & 'Galls'.

Necrosis/Necrotic – Death of tissues usually characterised by a blackening in colour.

Occlusion/Occluded – Normally used to describe the overgrowth of a wound. Also, immovable foreign objects in contact with a tree part can become encased or 'occluded' by the tree as it grows incrementally.

Pathogen - An agent that causes disease, especially a living microorganism such as a bacterium or fungus.

Plasticity index - The table used to calibrate the shrinkability of a clay soil.

Pollard – The removal and subsequent regular re-removal of the crown of a tree above animal browsing height. Can be an effective method of controlling the size of trees in urban areas. This is ideally begun in the trees early stages and maintained throughout its life.

Reaction wood - Essentially additional wood laid down by the tree to compensate for structural defects such as cavities.

Ring barking/Girdling – the removal of bark around the entire circumference of a stem or branch, causing the death of all distal parts.

Root Protection Area (RPA) – Layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m².

Saprophyte – An organism which exists on dead plant material.

Scaffold branches - The main structural branches within the crown.

Services – Any above ground and piped and/or ducted underground infrastructure including water main, electricity supply, gas supply, fibre optic utilities, telecommunications cabling, storm and foul water drainage, including temporary storage for run-off, pumping stations, interceptors and other allied buried structures.

Shrinkable clay – Clay soil which alters in volume depending on moisture content. Property sited on shrinkable clay can suffer subsidence damage due to soil desiccation; this can be due to the water uptake of nearby vegetation, including trees.

Special engineering – design of a structure with the physiological requirements of trees as the priority.

Standard – Size of tree for planting, usually ranging from 2m to 3.5m in height.

Structure – Man-made object, such as a building, carriageway, path, wall, services, and built and excavated earthworks.

Transplant – (1) size of tree for planting, usually ranges from 0.2m to 0.9m in height (2) the relocation of a tree or shrub including a given portion of the root system.

Tree Constraints Plan (TCP) – Plan prepared by an arboriculturist for the purposes of layout design showing the RPA and representing the effect that the mature height and spread of retained trees will have on layouts through shade, dominance, etc.

Tree Protection & Removal Plan – scale drawing prepared by an arboriculturist showing the finalised layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement (AMS), which can be shown graphically.

U.L.E – ‘Useful Life Expectancy’ is an estimate based on currently known factors of the possible remaining life of the tree as an asset.

Veteran tree – Tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

Vigour - A general classification, as to the present and future potential growth and development of a tree. A comment regarding the health status of the tree specific to its species