

THAMESFIELD EXTENSION TO THE EXISTING RETIREMENT VILLAGE

Arboricultural Impact Assessment



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Thamesfield
Arboricultural Impact
Assessment
V2
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REPORT

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1 EXECUTIVE SUMMARY

Scope

- 1.1 An arboricultural survey and Arboricultural Impact Assessment (AIA) has been undertaken in support of the proposed development within the Thamesfield retirement village.
- 1.2 Information in this report and attached references are based on the findings of a BS5837 survey carried out by Arbeco Ltd in November 2021 and complimented by information ascertained on a site visit by RPS in March 2023.
- 1.3 This planning application seeks permission for the creation of an extension to the existing retirement village and external works improvements.
- 1.4 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*.
- 1.5 An AIA identifies any vegetation requiring removal, pruning and how retained trees are to be protected during the implementation of the proposals.

Findings & Recommendations

- 1.6 The principles in BS5837:2012 were used to fully assess the impacts of the proposed works on the trees and other vegetation.
- 1.7 A total of 61 individual trees and 1 group were recorded during the tree survey carried out by Arbeco Ltd. Overall, the tree stock of the retirement village is in good vigour, but the majority of trees were considered of low quality (category C) trees.
- 1.8 **No trees will require removal** to accommodate the proposed development.
- 1.9 Where appropriate, 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 & Removal Plan (JSL4752_710) attached to this report.
- 1.10 Above ground construction requiring "No-dig" design principles; where new surfacing is proposed within area of existing building/ hard surfacing the new construction to utilise existing levels, reusing sub-base but replacing wearing courses within new construction, all in accordance with the preliminary Arboricultural Method Statement.
- 1.11 By following guidance set out within this report, all retained trees should be sufficiently protected during the development works.

2 INTRODUCTION

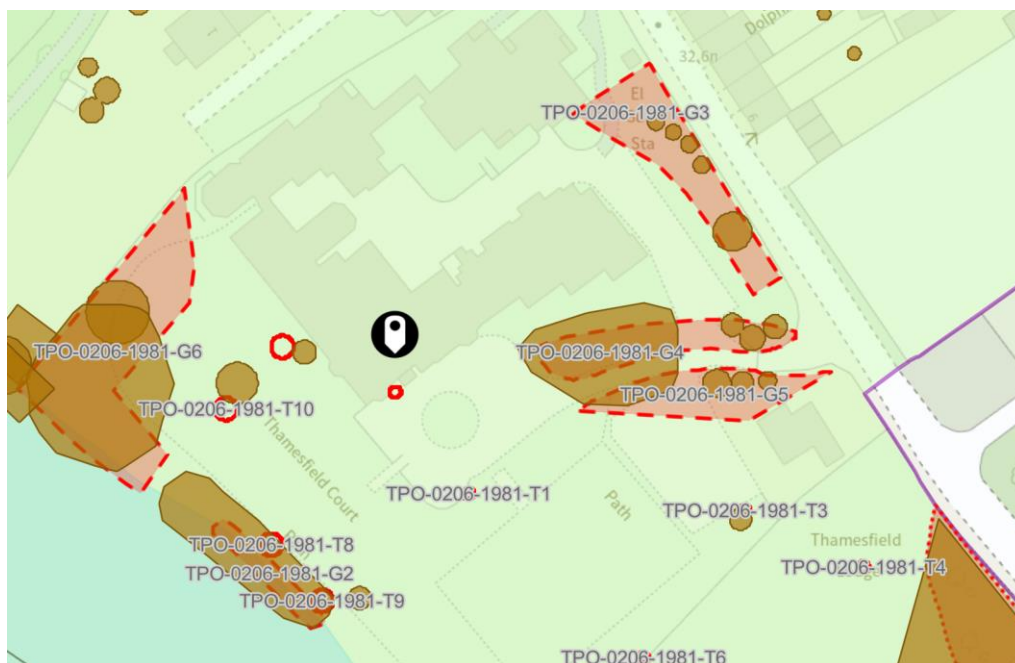
- 2.1 RPS Consulting Services Ltd (RPS) conducted an arboricultural site visit at Thamesfield Retirement Village to review existing tree data provided by Arbeco Ltd.
- 2.2 Our main objective was to inspect the trees along the north-western boundary and assess the potential impact of the development proposals on these trees. Some discrepancies in the original survey were also identified and noted in an RPS Arb Inspection Note JSL4752_790 (001)(06-03-2023) included as an appendix within this report.
- 2.3 It is important to note that the RPS site inspection does not constitute a comprehensive Arboricultural re-survey. It is possible that other discrepancies may be relevant, which would only be identified through a total re-survey of the site.
- 2.4 This report should be read in conjunction with the supplied Tree Constraints Plan (see drawing JSL4752_700) by Arbeco Ltd, Tree Protection Plan (see drawing JSL4752_710), and all other relevant Tables and Appendices as detailed within the table of contents.
- 2.5 The proposed layout design of the extension 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.
- 2.6 This assessment was undertaken by RPS Principal Arboriculturist Stefan Kowalczyk, DipArb L4, and Professional Member of the Arboricultural Association.

Limitations

- 2.7 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.
- 2.8 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.
- 2.9 Trees were not climbed or inspected below ground level and inaccessible trees will have best estimates made about the location, physical dimensions and characteristics.
- 2.10 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 retirement village. Located at the Retirement Villages Thamesfield, Wargrave Road, Henley-On-Thames, RG9 2LX.
- 3.2 The site is situated roughly on the OS grid reference: **SU 76614 82487**.
- 3.3 The site can also be located by the 'What3Words' coordinates of: **unusable.perfected.leave**
- 3.4 The retirement village is comprised of 4 main buildings, a car park, and grass areas. Most the trees line the north-eastern border and others are dotted around the site. To the north of the main car park are several mature limes. The River Thames runs along the south-west of The Site.
- 3.5 The primary woody vegetation consists of topped limes in good condition north of the car park and bushy yew trees to the west of the Care Home. Mature Ginkgo's are situated to the south of the Care Home make for attractive focal points.
- 3.6 A TPO check was made with the planning division of the Wokingham Borough Council via the use of their online interactive mapping software. It was deduced from this that the development site **does contain Tree Preservation Orders (TPOs)** enforced on recorded trees.
- 3.7 A Conservation Area check was also made with the planning division of the Wokingham Borough Council via the use of their online interactive mapping software. It was deduced from this that the development site **is situated within a Conservation Area currently administered by the council**.



https://experience.arcgis.com/experience/c0ad4ce95f8e46cfb28bb8cb126eae0?data_id=dataSource_1-18a885761c7-layer-80%3A15

4 TREE QUALITY ASSESSMENT

Retention Values

- 4.1 All trees inspected were categorised using BS5837:2012 and the attached Tree Constraints Plan (carried out by Arbeco Ecology) shows tree positions, numbers, and retention categories. Trees were recorded as individuals and as groups.
- 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 61 individual trees and 1 group of trees were surveyed during the visit.
- 4.10 Of the 61 individuals recorded, **2** were **Category A** (high quality), **20** were given **Category B** (moderate quality), **39** were **Category C** (low quality) and 10 were given **Category U** (poor condition).
- 4.11 The 1 group recorded is **Category B** (moderate quality).

Physiological Condition

- 4.12 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.
- 4.13 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.
- 4.14 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.
- 4.15 Of the 61 individual trees recorded, **20** were considered in ‘**good**’ condition, and **39** were found to be in ‘**fair**’ physiological condition.
- 4.16 The 1 group was considered to be in ‘**good**’ 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 and crossing branches were not considered significant and are unlikely to result in the premature failure of the tree.
- 4.19 Some of the trees on site have been subjected to “bad practice” pruning techniques known as topping. These are now managed by cyclical pruning of the regrowth. Topping is known to result in decay into the stems where the cuts were made. This is unlikely to result in premature tree failure, however it is advisable the trees be monitored.
- 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 trees surveyed, 13 individuals were classified to be at a **mature life stage**, one individual was classified as **young**, 14 individuals were classified as **semi mature**, and 33 individuals and one group were classified as **early mature**. No trees were found to be in the over mature classification.
- 4.28 Therefore, it can be safely said that the development site contains a fair range of ages with them being a mix of established trees.

Species Distribution

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

BOTANICAL NAME	COMMON NAME
<i>Robinia pseudoacacia</i>	Black locust
<i>Magnolia sieboldii</i>	Chinese magnolia
<i>Alnus glutinosa</i>	Common alder
<i>Fraxinus excelsior</i>	Common ash
<i>Tilia x europaea</i>	Common lime
<i>Juglans regia</i>	Common walnut
<i>Metasequoia glyptostroboides</i>	Dawn redwood
<i>Taxus baccata</i>	English yew
<i>Fagus sylvatica</i>	European beech
<i>Carpinus betulus</i>	European hornbeam
<i>Acer campestre</i>	Field maple
<i>Ginkgo biloba</i>	Maidenhair tree
<i>Aesculus hippocastanum</i>	Horse chestnut
<i>Betula pendula</i>	Silver birch
<i>Magnolia grandiflora</i>	Southern magnolia
<i>Acer pseudoplatanus</i>	Sycamore
<i>Prunus avium</i>	Wild cherry

5 CONSTRUCTION REQUIREMENTS

- 5.1 The proposed development consists primarily of an extension to the main buildings. This includes new seating areas, access routes, and facilities. The surfacing within the car parking area is to be retained as is. Only where parking is to be extended, outside of RPAs, will new surfacing be laid.
- 5.2 During the proposed development, access will be required for personnel / equipment to:
- Undertake any specified pruning;
 - Install tree protection fencing;
 - Construct the extension;
 - Carry out re-surfacing works outside of RPAs;
 - Carry out any final landscaping and replanting works.
- 5.3 Reference to this document should form part of any method statement regarding the proposed construction works. This will show an understanding of the issues and actions required to protect the trees.
- 5.4 The construction process will need to be monitored during its progress to ensure continued protection of any retained trees.
- 5.5 Throughout the construction process, all of the protective measures, detailed in the Tree Protection & Removal Plan (drawings JSL4752_710), specifically the placement of the Heras protective fencing, must be adhered to.

6 ARBORICULTURAL IMPACT ASSESSMENT - WORKS

Introduction

- 6.1 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.
- 6.2 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.
- 6.3 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.
- 6.4 Development has the potential to impact upon the above ground as well as below ground parts of trees.
- 6.5 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.
- 6.6 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.
- 6.7 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.
- 6.8 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.
- 6.9 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.

Brief Description of Proposed Development

- 6.10 The proposed development consists of the extension of the care home and external works.

Tree Removal

6.11 No recorded trees will require removal.

Root Protection Areas

- 6.12 Root Protection Areas (RPAs) for each tree surveyed have been determined in accordance with BS5837:2012 Section 4.6 Root Protection Area – data provided by Arbeco Ltd. Initial RPAs for the trees were plotted onto the Tree Constraints Plan (see drawings JSL4752_700) and have been used to produce all relevant tree plans in this statement.
- 6.13 The layout of the development seeks to retain all existing surfaces to avoid impacting RPAs. The layout, similarly, does not propose any encroachment beyond the existing car parking edges. Little to no impact from external landscaping works is therefore proposed.
- 6.14 In the case that resurfacing works are required within the RPA this could be achieved by using the existing sub-base and relaying the finished surface on top – subject to engineer approval.
- 6.15 The proposed external works will avoid the need for any disturbance to the RPA by utilising the existing surfacing.

Existing Canopy Spreads

- 6.16 Pruning works may be required to facilitate the installation of Tree Protection Fencing. If it is decided that pruning work is needed, the following must be adhered to:
- 6.17 Any pruning work should be undertaken by an approved, competent contractor complying with BS3998:2010 throughout. Specifically referring to reductions, this means that pruning cuts are made back to 'sap risers', smaller side branches which should be at least 1/3rd of the diameter of the branch removed. Trees should only be reduced by a specified metreage, such as those detailed by a competent arboriculturist.
- 6.18 Pruning work requirements for the site should be reassessed closer to the time of construction commencement and appropriate measures must be put in place to ensure there is no conflict between the construction requirements and the canopies of retained trees.

Services and Utilities

- 6.19 The laying of low-voltage cables to serve electric charging points may be required. If so, the route for these cables must be located adjacent to the existing carp parking edge or within the existing cable route that supports existing lighting. Any new tranches must not be beneath 300m in depth and be hand-dug when within and RPA.
- 6.20 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).

Contractor Access / Egress

- 6.21 All routes of access should follow existing roads and hard-surface areas within the site. The movement of all construction vehicles and workers should be planned so as to avoid RPA of trees nearby and therefore should have no impact on them.

Planning of Site Operations

- 6.22 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.
- 6.23 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.
- 6.24 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.
- 6.25 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.

7 PRE-DEVELOPMENT WORKS

Tree Removal

- 7.1 No recorded trees will require removal.

Predevelopment Tree Pruning Works

- 7.2 Pruning works may be required to facilitate the installation of Tree Protection Fencing. If require they must follow the following standard of work.

Standard of Work

- 7.3 All tree works should be carried out in accordance with BS3998:2010 *Tree Work - Recommendations* and latest arboricultural best practice.
- 7.4 All tree work should be carried out by suitably qualified, competent and insured arboricultural contractors.
- 7.5 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.
- 7.6 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 a small as possible and an assessment of each individual branch taken by the operative before making the cut.
- 7.7 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.
- 7.8 If there are any concerns regarding the above, then this shall be raised prior to any construction works commencing.
- 7.9 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

- 7.10 All tree works shall be completed prior to commencement of any construction works on the site.
- 7.11 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

- 7.12 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 & Removal Plan (see drawings JSL4752_710).

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- 7.13 To ensure successful tree protection during this process, all operatives should be briefed on the need to pay regard the existing trees and all operations adjacent to trees be properly supervised. This will help ensure the works do not affect adversely the trees.
- 7.14 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.
- 7.15 The protective fencing barrier is to be constructed in accordance with the specification detailed at Appendix C.
- 7.16 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.

8 CONSTRUCTION WORKS

Construction Exclusion Zone

- 8.1 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.
- 8.2 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.
- 8.3 Furthermore, vehicular or pedestrian access and the storage of any materials is prohibited within the CEZ.
- 8.4 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

- 8.5 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.
- 8.6 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.
- 8.7 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

- 8.8 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 JSL4752_710) and any relevant conditions that may be attached to a grant of planning consent for the development.
- 8.9 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

- 8.10 During the construction phase of the development the Site Manager will be responsible for liaising with the Council Tree Officer on all arboricultural issues.
- 8.11 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.

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Tables

Table 1: Tree Survey Schedule

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

Table 1: Schedule of Trees and Tree Quality Assessment*

* See Table 3 for key to terms
 ** See Table 2 for definitions of categories

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. CI	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm 2	RPA r
					N	S	E	W										
T1	Horse chestnut	10	1	1100	7	7	6	6	2.5	M	Fair	Fair	Bracket fungus on northern aspect of main stem. Heavily pruned with epicormic growth present. Large un-occluded wounds on scaffold limbs. Good aspect ratios.	Investigate progression of fungi. Ameliorate soil environment in RPA. Refrain from pruning for three years unless remedial.	20+	B1	547.4	13.2
T2	Ginkgo	8	1	490	5	4	4	4	4	EM	Good	Good	Good form growing well on small bank.	None	20+	B1	108.6	5.9
T3	European beech	7	1	190	3	3	3	3	2	SM	Good	Good	A good form with open growth habit.	None	10+	C1	16.3	2.3
T4	Chinese magnolia	6	1	250	4	4	4	4	3	SM	Good	Good	Good spreading form.	None	10+	C1	28.3	3.0
T5	Dawn redwood	10	1	460	5	5	5	5	1	EM	Good	Good	Good example species.	None	20+	B1	95.7	5.5
T6	Field maple	6	1	190	1	1	1	1	1	SM	Good	Good	Fastigate example.	None	10+	C1	16.3	2.3
T7	English yew	8	1	500	4	4	3	3	0	EM	Fair	Good	Managed as screen.	None	20+	B1	113.1	6.0
T8	Common ash	14	1	570	0	7	7	1	6	EM	Fair	Fair	Water pooling at basal wound. Signs of dieback.	None	10+	C2	147.0	6.8

Table 1: Schedule of Trees and Tree Quality Assessment*

* See Table 3 for key to terms
 ** See Table 2 for definitions of categories

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. CI	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm 2	RPA r
					N	S	E	W										
T9	Horse chestnut	15	1	980	6	5	7	4	4	M	Fair	Good	Root damage from mower. Competition with ash.	None	20+	B1	434.5	11.8
T10	European beech	5	1	180	1	1	1	1	0.5	SM	Good	Good	Fastigate example with good form.	None	10+	C1	14.7	2.2
T11	English yew	3	1	150	0	3	0	3	0	SM	Poor	Good	Falling into river.	None	10+	C2	10.2	1.8
T12	Common alder	5	1	280	1	2	1	1	2	SM	Fair	Good	Merging crowns with T13.	None	10+	C1	35.5	3.4
T13	Common alder	5	1	280	3	1	1	1	2	SM	Fair	Good	Merging crowns with T12.	None	10+	C1	35.5	3.4
T14	English yew	5	1	300	1	2	2	1	1	SM	Poor	Fair	Managed as a screen.	None	10+	C2	40.7	3.6
T15	European beech	3	1	80	0.5	0.5	0.5	0.5	0.5	Y	Fair	Fair	Newly planted.	None	10+	C1	2.9	1.0
T16	English yew	4	1	480	1	4	5	1	1	EM	Fair	Good	Heavy lean to the south. Managed crown.	None	20+	B1	104.2	5.8
T17	English yew	12	1	890	5	7	5	3	4	M	Fair	Good	Crown lifted with un-occluded wounds. Bifurcation with tight union at 3m.	None	40+	A2	358.3	10.7
T18	European hornbeam	15	1	650	5	7	7	5	3	M	Fair	Good	Spreading form. Un-occluded pruning wounds. Crown lifted.	None	40+	A2	191.1	7.8

Table 1: Schedule of Trees and Tree Quality Assessment*

* See Table 3 for key to terms
 ** See Table 2 for definitions of categories

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. CI	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm 2	RPA r
					N	S	E	W										
T19	Common lime	16	1	790	5	5	4	5	4	EM	Fair	Fair	Crown bias to west epicormic growth.	None	20+	B2	282.3	9.5
T20	Sycamore	15	1	490	2	6	2	3	5	EM	Fair	Good	Wound at base. Leaning east.	None	20+	B2	108.6	5.9
T21	Sycamore	15	1	580	4	5	6	4	5	M	Fair	Fair	Leaning north.	None	20+	B2	152.2	7.0
T22	Sycamore	14	1	520	4	4	4	4	5	EM	Good	Good	Growing well with good vitality.	None	20+	B2	122.3	6.2
T23	Sycamore	12	1	610	7	2	5	4	4	M	Poor	Good	Large un-occluded wound on western aspect of main stem.	None	10+	C1	168.3	7.3
T24	Ginkgo	8	3	310; 390; 340	5	5	5	5	3	EM	Fair	Good	Tight 'V' shaped union with possible included bark.	None	20+	B2	164.6	7.2
T25	Common walnut	5	1	210	3	3	3	3	2	SM	Good	Good	Good form.	None	10+	C1	20.0	2.5
T26	Common lime	12	1	820	1	1	1	1	5	M	Fair	Fair	Topped.	None	20+	C2	304.2	9.8
T27	Common lime	10	1	790	1	1	1	1	5	M	Fair	Fair	Topped.	None	20+	C2	282.3	9.5
T28	Common lime	12	1	640	1	1	1	1	5	M	Fair	Fair	Topped.	None	20+	C2	185.3	7.7

Table 1: Schedule of Trees and Tree Quality Assessment*

* See Table 3 for key to terms
 ** See Table 2 for definitions of categories

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. CI	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm 2	RPA r
					N	S	E	W										
T29	Common lime	12	1	620	1	1	1	1	5	M	Fair	Fair	Topped.	None	20+	C2	173.9	7.4
T30	English yew	10	1	550	4	4	4	4	4	EM	Good	Good	Growing well with good vitality.	None	20+	B2	136.8	6.6
T31	English yew	10	1	550	4	4	4	4	4	EM	Good	Good	Growing well with good vitality.	None	20+	B2	136.8	6.6
T32	English yew	10	1	550	4	4	4	4	4	EM	Good	Good	Growing well with good vitality.	None	20+	B2	136.8	6.6
T33	English yew	10	1	550	4	4	4	4	4	EM	Good	Good	Growing well with good vitality.	None	20+	B2	136.8	6.6
T34	Black locust	8	1	320	1	5	4	5	4	EM	Fair	Fair	Topped.	None	10+	C1	46.3	3.8
T35	Sycamore	8	1	640	4	4	4	4		EM	Poor	Good	Tight fused union merged crown	None	10+	C2	185.3	7.7
T36	European hornbeam	7	1	330	4	6	4	4	2	SM	Good	Good	Growing well with good vitality.	None	10+	C1	49.3	4.0
T37	Sycamore	14	1	460	2	5	6	3	8	EM	Good	Good	Leaning east.	None	20+	B2	95.7	5.5
T38	Sycamore	10	1	400	3	7	3	5	2	EM	Good	Good	Occluding wound at base.	None	10+	C2	72.4	4.8

Table 1: Schedule of Trees and Tree Quality Assessment*

* See Table 3 for key to terms
 ** See Table 2 for definitions of categories

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. CI	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm 2	RPA r
					N	S	E	W										
T39	Common ash	15	1	590	6	6	2	5	5	M	Good	Good	Crown bias to the west.	None	20+	B2	157.5	7.1
T40	Sycamore	15	1	560	5	6	3	6	5	M	Good	Good	Growing from the bank.	None	20+	B2	141.9	6.7
T41	Sycamore	10	1	400	3	3	3	3	2	EM	Fair	Fair	Merging crowns with T42.	None	10+	C1	72.4	4.8
T42	Sycamore	10	1	310	3	3	3	3	2	EM	Fair	Fair	Merging crowns with T41.	None	10+	C1	43.5	3.7
T43	Sycamore	10	1	400	3	3	3	3	2	EM	Fair	Fair	Merging crowns with T44.	None	10+	C1	72.4	4.8
T44	Sycamore	10	1	400	3	3	3	3	2	EM	Fair	Fair	Merging crowns with T43.	None	10+	C1	72.4	4.8
T45	English yew	10	1	420	5	5	5	5	2	EM	Good	Good	Growing well with good vitality.	None	20+	B2	79.8	5.0
T46	English yew	10	1	420	5	5	5	5	2	EM	Good	Good	Growing well with good vitality.	None	20+	B2	79.8	5.0
T47	Common alder	8	1	270	2	3	3	3	2	EM	Good	Good	Growing well with good vitality.	None	10+	C1	33.0	3.2
T48	Common lime	15	2	320; 560	3	5	2	5	2	EM	Poor	Good	Topped second stem crown bias to west. Tight 'V' shaped union with possible included bark.	None	20+	C1	188.2	7.7

Table 1: Schedule of Trees and Tree Quality Assessment*

* See Table 3 for key to terms
 ** See Table 2 for definitions of categories

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. CI	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm 2	RPA r
					N	S	E	W										
T49	Sycamore	15	1	540	7	2	5	5	8	M	Poor	Good	Growing well with good vitality.	Check progression of decay at base. Heavy lean towards road.	10+	C2	131.9	6.5
T50	Common lime	7	1	330	3	3	3	3	2	SM	Good	Good	Crown merge with telegraph wires	None	10+	C1	49.3	4.0
T51	Wild cherry	5	1	230	2	2	2	2	3	SM	Good	Good	Growing well with good vitality.	None	10+	C1	23.9	2.8
T52	Wild cherry	5	1	230	2	2	2	2	3	SM	Good	Good	Growing well with good vitality.	None	10+	C1	23.9	2.8
T53	Wild cherry	5	1	230	2	2	2	2	3	SM	Good	Good	Growing well with good vitality.	None	10+	C1	23.9	2.8
T54	Southern magnolia	5	1	360	1	1	1	1	3	EM	Fair	Fair	Against the building growing in a small bed.	None	10+	C2	58.6	4.3
T55	Silver birch	8	1	340	2	2	2	2	2	EM	Good	Good	Good form.	None	10+	C1	52.3	4.1
T56	Common lime	8	1	450	1	1	1	1	5	EM	Fair	Fair	Topped.	None	20+	C2	91.6	5.4
T57	Common lime	8	1	460	1	1	1	1	5	EM	Fair	Fair	Topped.	None	20+	C2	95.7	5.5
T58	Common lime	8	1	440	1	1	1	1	5	EM	Fair	Fair	Topped.	None	20+	C2	87.6	5.3

Table 1: Schedule of Trees and Tree Quality Assessment*

* See Table 3 for key to terms
 ** See Table 2 for definitions of categories

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. CI	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm ²	RPA _r
					N	S	E	W										
T59	Common lime	8	1	450	1	1	1	1	5	EM	Fair	Fair	Topped.	None	20+	C2	91.6	5.4
T60	Common lime	8	1	470	1	1	1	1	5	EM	Fair	Fair	Topped.	None	20+	C2	99.9	5.6
T61	Common lime	8	1	440	1	1	1	1	5	EM	Fair	Fair	Topped.	None	20+	C2	87.6	5.3
G1	English yew	7	1	400	1	1	1	1	1	EM	Good	Good	Managed as a screen.	None	20+	B2	72.4	4.8

Figures

JSL4752_700: TREE CONSTRAINTS PLAN

JSL4752_710: TREE PROTECTION AND REMOVAL PLAN

Job title
Thamesfield
Job no. T6651

Client
RV Services Ltd.

Map title
Tree Constraints Plan

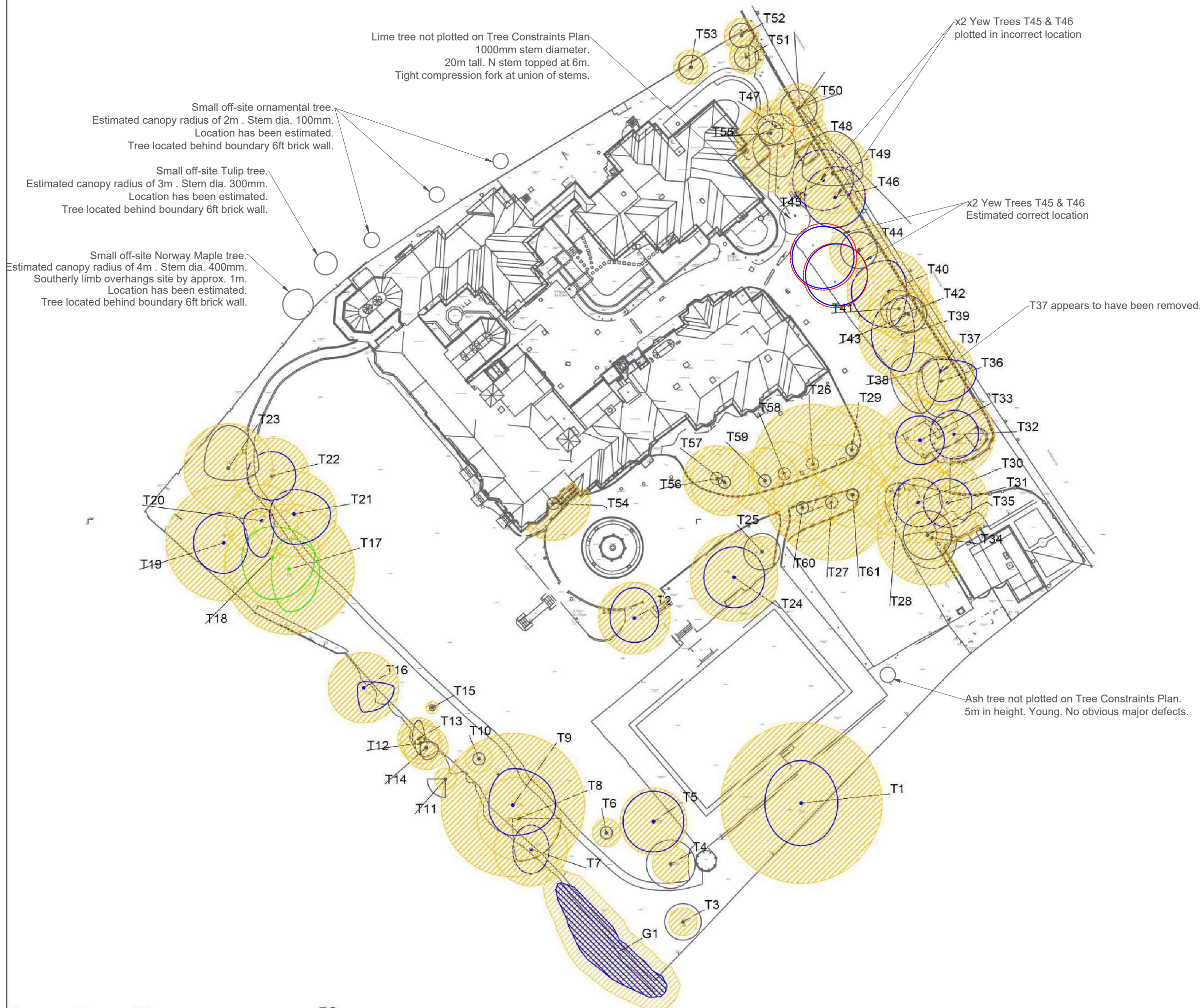
Section: N/A Scale (at A3) 1:650

Date of survey
8/11/2021

Surveyor
Wesley Rawson

Drawn WR	Approved NC	Date 15/11/2021
-------------	----------------	--------------------

- Legend**
-  Crown spread of category C - Trees with low quality and value
 -  Crown spread of category B - Trees with moderate quality and value
 -  Crown spread of category A - Trees with high quality and value
 -  Root Protection Area (RPA)
 -  Crown spread of Category B groups



0m 10m 20m 50m

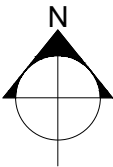


The trees on site are protected by Tree Preservation Order No.0206-1981.
The site is in a Conservation Area - name Remenham Henley Bridge

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Notes
1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipient's responsibility to print to correct scale. Only written dimensions should be used.
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Key

- Red line boundary.
- Tree with numbered reference.
Canopy spread and coloured BS5837:2012 tree quality category as shown below.
* Tree locations and dimensions provided by Arbeco Ltd - Tree Constraints Plan
- Root protection area (RPA)
Calculated in accordance with Section 4.6 - BS5837:2012
- Retain existing hard-standing within RPA.
- 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.
 - 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 Point 2 Surveyors limited reference number LS2498_T_290621
 - Pedestrian/ vehicular emergency access routes to be maintained at all time
 - 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 3998:2010 - Tree Works
BS 5837:2012 - Trees in relation to design, demolition and construction

Rev	Description	By	CB	Date



Lakesbury House, Hiltingbury Road, Chandlers Ford, Hampshire SO53 5SS
T: 02380 810 440 E: rpssso@rpsgroup.com

Client **RV Services Limited**

Project **Thamesfield**

Title **Tree Protection Plan**

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

Job Ref **JSL4752** Scale @ A2 **1:500** Date Created **Nov 23**

RPS Drawing / Figure Number **710** Rev **-**

rpsgroup.com

Appendix A

Arb Inspection Note – JSL4752_790 (001)(06_03_23)

Our ref: Thamesfield: Arborist Site Visit – JSL4752

Lakesbury House,
Hiltingbury Road
Hampshire SO53 5SS
T +44 2380 810 440

Date: 24 May 2023

Retirement Villages Developments Ltd,
3rd Floor, 123 Victoria St,
London, SW1E 6DE

Dear Abigail,

Arboricultural Site Visit at Thamesfield Retirement Village

Attachments: RPS Markup of Arbeco Tree Constraints Plan and Site Photos

RPS Consulting Services Ltd (RPS) recently conducted an arboricultural site visit at Thamesfield Retirement Village to review existing tree data provided by Arbeco Ecology, Tree & Habitat Services Ltd. Our main objective was to inspect the trees along the north-western boundary and assess the potential impact of the development proposals on these trees.

During our site visit on 6th March 2023, we observed that the trees along the north-western boundary were not plotted on the Arbeco Tree Constraints Plan (T6651_15/11/2021). As a result, we had to estimate the precise locations of these trees. It should be noted that these off-site trees are situated behind a 6ft brick wall, which is most likely resting on a concrete strip foundation. In general, these trees were small and relatively young. The largest tree had an approximate canopy spread of a 4m radius with an approx. 400mm diameter stem at 1.5m above ground level. All other trees along this boundary were smaller in size. Although it would have been beneficial to include these trees within the Tree Constraints Plan, we do not consider them to be significant in relation to the proposed development.

During our inspection, we also identified some inaccuracies in the Arbeco Tree Constraints Plan. Firstly, we found that two large Yew trees, T45 & T46, were incorrectly located. In fact, they overhung the existing car parking area along the easterly boundary, and their Root Protection Area (RPAs) slightly extend into the existing hardstanding. We have plotted their correct estimated locations on the RPS markup of the Arbeco Tree Constraint Plan.

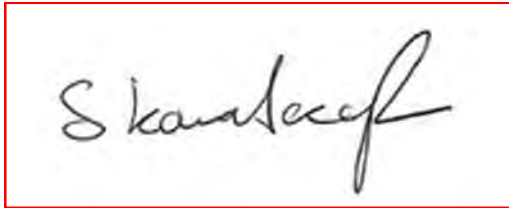
Additionally, we noticed that a Lime tree, situated just north of the proposed new location of T45 and T46, has not been plotted on the Arbeco Tree Constraints Plan. Furthermore, it appears that T37 has been removed and can be omitted from the Arbeco Tree Constraints Plan. Finally, we identified an additional young tree along the southern boundary, adjacent to the easterly corner of the formal lawn. We estimated its location and included it on the RPS Markup of the Arbeco Tree Constraints Plan.

To summarise, overall, the Arbeco Tree Constraints Plan is relatively accurate, with the exceptions mentioned above. However, it is important to note that our site inspection does not constitute a comprehensive Arboricultural survey. It is possible that other exceptions may be relevant, which would only be identified through a total re-survey of the site. Upon cross-referencing the initial proposed plan it does not appear that any of the discrepancies highlighted by RPS will be affected by the proposed development of the site, assuming that all existing car parking surfacing within the RPA of the proposed new location of T45 and T46 is to be retained. If any re-surfacing is required, detailed information should be captured in an Arboricultural Impact Assessment and Arboricultural Method Statement, as necessary.

Our ref: Thamesfield: Arborist Site Visit – JSL4752

We trust that this review provides you with valuable insights regarding the Tree Constraints Plan, and we remain at your disposal should you have any further inquiries or require additional assistance. Thank you for your attention to this matter.

Yours sincerely,
for RPS Consulting Services Ltd

A handwritten signature in black ink, enclosed in a red rectangular border. The signature appears to be 'S Kowalczyk' in a cursive, stylized script.

Stefan Kowalczyk
Principle Arboriculturalist
stefan.kowalczyk@rpsgroup.com

Job title
Thamesfield
Job no. T6651

Client
RV Services Ltd.

Map title
Tree Constraints Plan

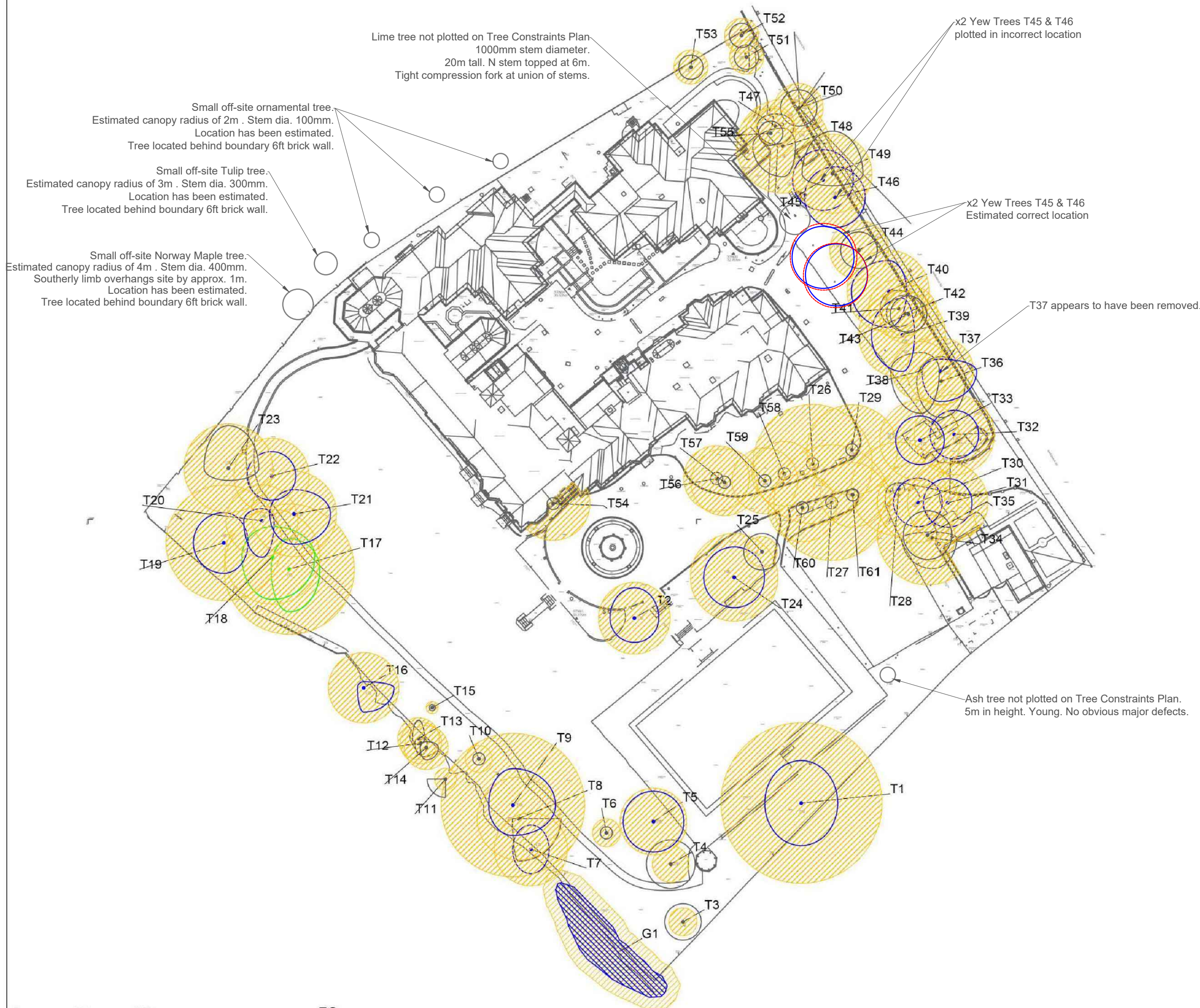
Section: N/A Scale (at A3) 1:650

Date of survey
8/11/2021

Surveyor
Wesley Rawson

Drawn WR	Approved NC	Date 15/11/2021
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- Legend**
-  Crown spread of category C - Trees with low quality and value
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 -  Crown spread of category A - Trees with high quality and value
 -  Root Protection Area (RPA)
 -  Crown spread of Category B groups



0m 10m 20m 50m











PLEASE
KEEP DOGS
ON A LEAD



Appendix B

Survey Methodology

General

This report was authored by Ralph Baggs, Assistant Arboriculturist and authorised by Thomas Flood, Principal Arboriculturist, 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 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 (JSL4752_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 JSL4752_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.

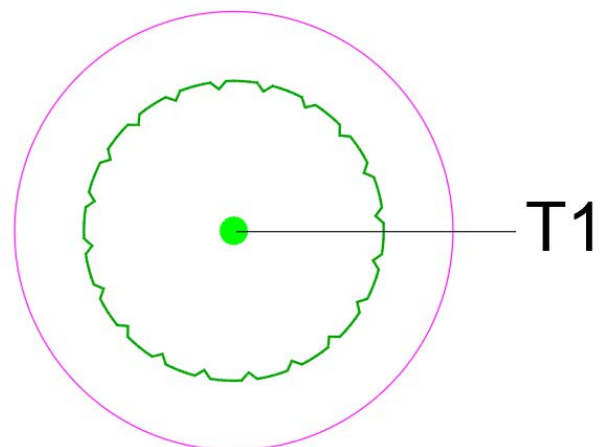
The information provided within this section of the report is to assist in the interpretation of the Tree Constraints Plan and aims to ensure that those trees selected for retention can be successfully integrated within the proposed development.

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.

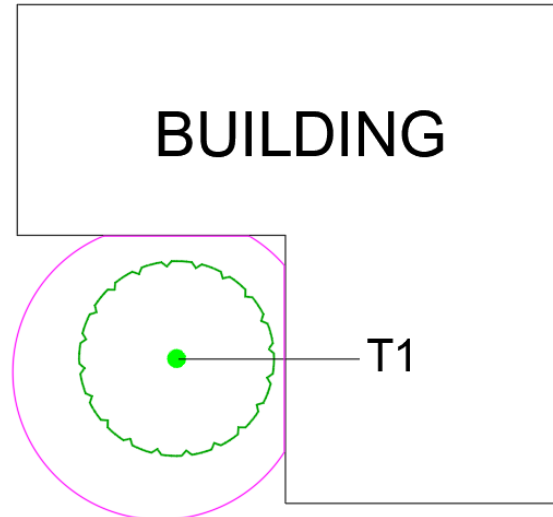


REPORT

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.



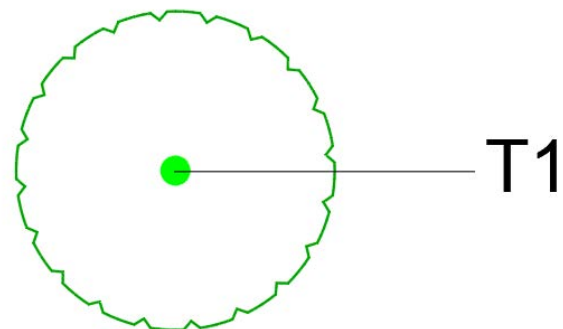
Existing Canopy Spreads

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.

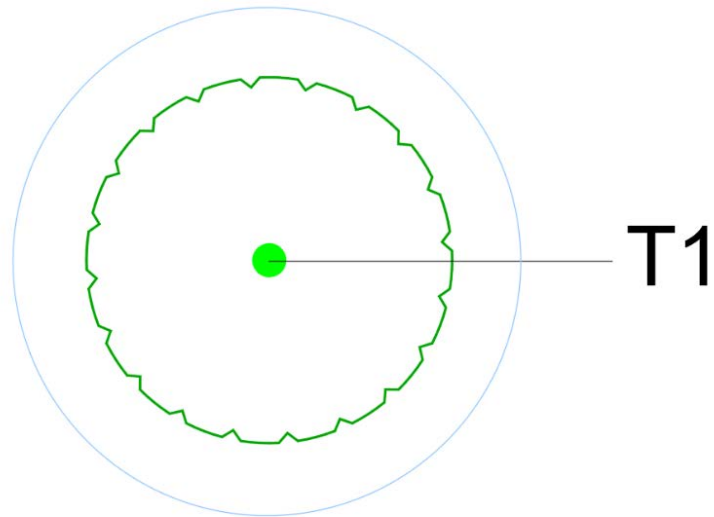


REPORT

Future Tree Growth

Some of the trees surveyed are not yet mature and they have the potential for future growth. Where these are to be retained consideration to their ultimate crown spread should be given as future branch growth may result in interference with proposed development, damage to branches and the need for a tree pruning regime.

To facilitate assessment of future tree growth maximum expected canopy spreads have been marked on the Tree Constraints Plan (see drawing JSL4752_700) as shown here.



The area of mature tree spread is estimated by the arboriculturist and is their best judgement of mature crown spread based on experience and with regard to the current tree growth observed on the site.

Within the area of maximum branch spread construction activities should be restricted for the long-term health and vigour of the trees.

In this respect it is considered that within the area of maximum branch the construction of utility buildings, such as single storey garages or sheds and the installation of hard surfaces would generally be an appropriate form of construction, however, should car parking be proposed beneath the ultimate spread of trees the likelihood of fruit fall, leaf litter or sap exudate causing a nuisance must be considered.

In addition, it is important to consider the likelihood of damage to trees or structures that may be caused by continuous whipping of branches in windy conditions. In such circumstance's branches may have to be repeatedly cut back which will introduce wounds in the tree and may spoil its form or shape. In general terms trees should not be retained upon the basis that their ultimate branch spread can be significantly controlled by periodic pruning.

REPORT

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.

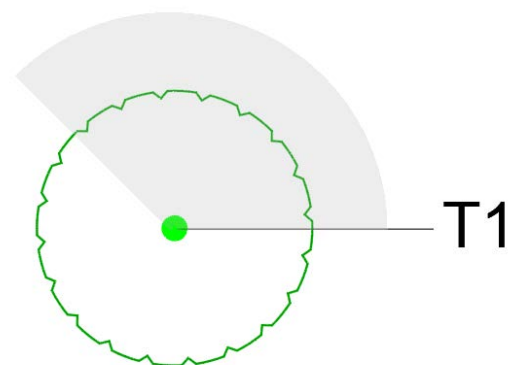
The two figures can be used to inform the extent to which a trees crown may be at risk of damage during development as a result of vehicular or plant movements within the site and to assess the need for additional protective measures to be implemented to protect low branches.

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.

Shading

It should be appreciated during the design of the development that trees can cause shading and obstruction of daylight and sunlight. It should be recognised that the extent of shading likely will vary with tree species, canopy shape and size, foliage density, time of year and sun elevation and that such shading will often be seasonal and diffuse.

Shading has been shown on the constraints plan, but this is a very basic shade pattern and it should not be considered as a definitive pattern. Shade and it affects/benefits to residential buildings should be considered by the designers within the overall site appraisal for the building layout. Shade cast by plotted trees will be displayed as seen here on the Tree Constraints Plan.



Appendix C

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 D

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

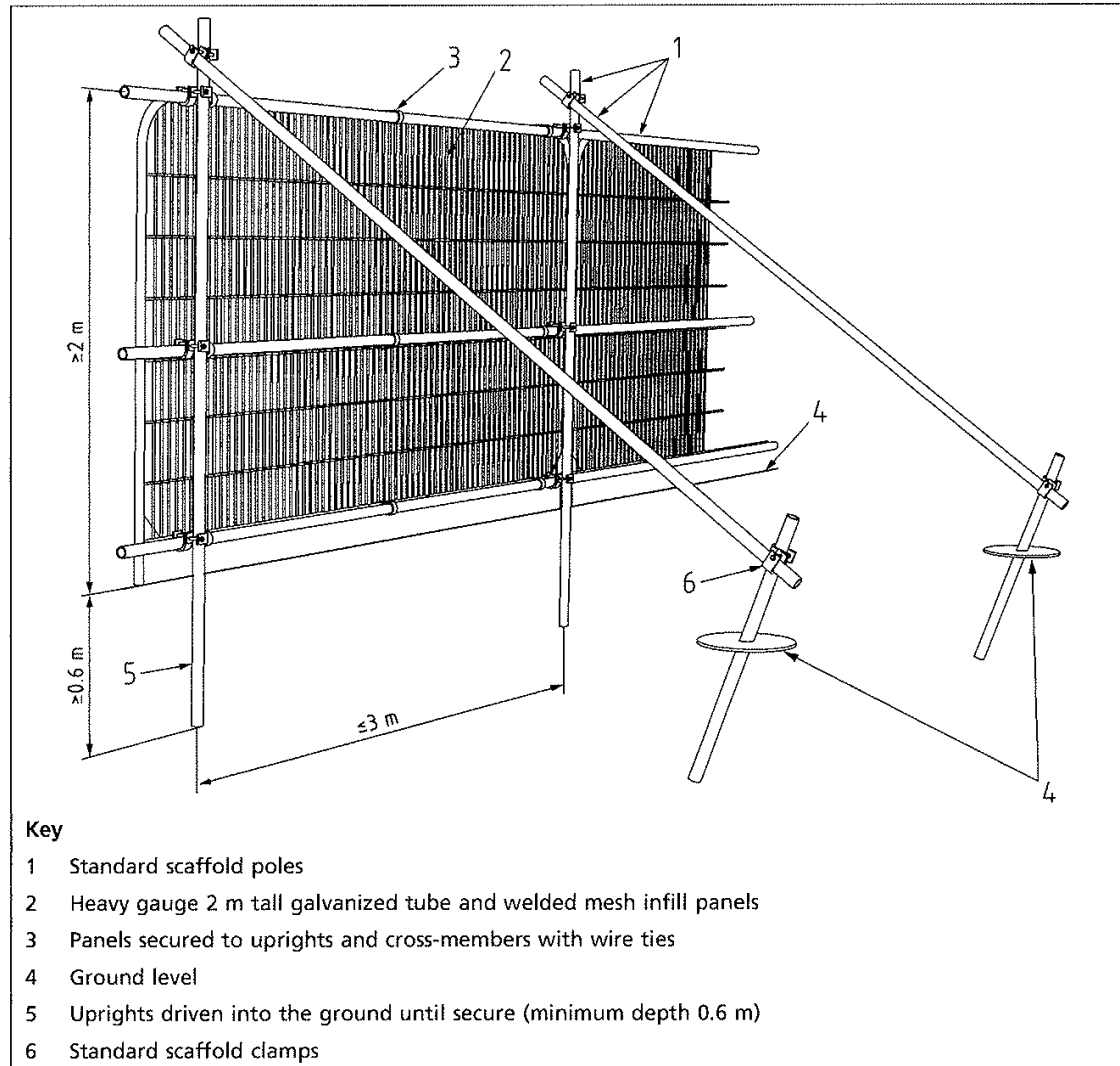
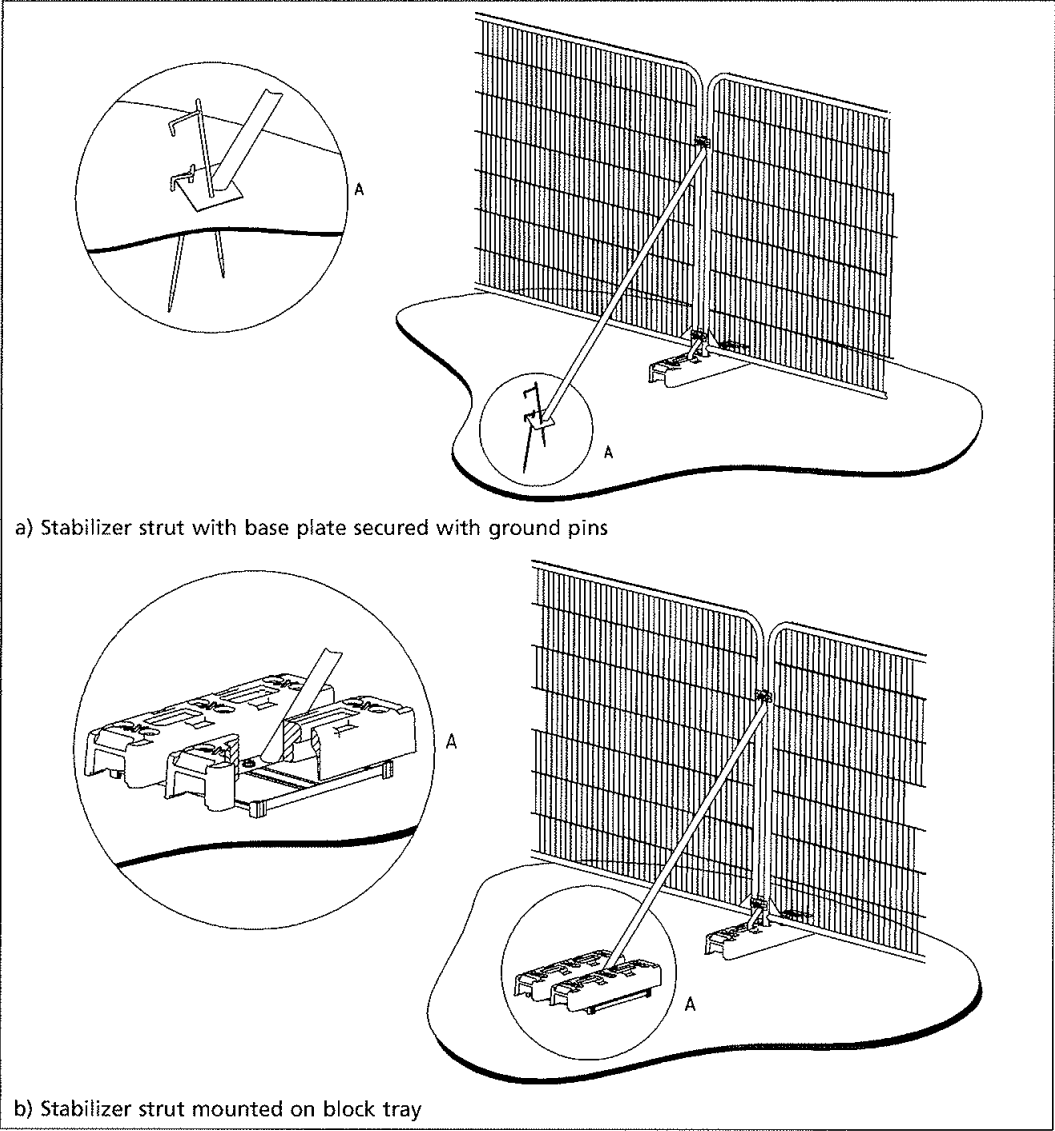


Figure 2.

Figure 3 Examples of above-ground stabilizing systems



Appendix E

Construction Exclusion Signage – Example



Appendix F

Site Photographs



An image taken from an existing concrete slab adjacent tool shed/container looking NNW along the boundary with Wargrave Road.



Image of the norther section of the treed boundary adjacent Wargrave road. Looking north.



**Image taken looking northeast with T27, T61 & T28
in center frame. Existing surfacing to be retained.**

Appendix G

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 H

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