



# Duramen

BS5837 Arboricultural Report



Trees at and nearby

25 St George's Road  
Twickenham  
TW1 1QS

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CLIENT:

**Karen Gilbert**

Ref: 18019(f4)

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## **1 Introduction**

- 1.1 This report provides the results of a tree survey and arboricultural impact assessment at 25 St George's Rd, Twickenham, TW1 1QS.
- 1.2 Plans to develop the property have been prepared and this report has been provided in order to inform the design & planning process. Since the original tree survey in 2019 Richmond Council has granted planning permission ref 19/1228/HOT with a tree protection condition. The updated development proposal is considered from an arboricultural perspective to have no significant difference to the one already agreed.
- 1.3 A topographic plan has been used to locate trees within the plot; trees on the alley way to the rear have been located using a hand-held laser device.

## **2 Overall Site Description**

- 2.1 The plot is flat with a triangular shape having length of approximately 30 metres and at its greatest depth of 22 metres, giving an area of 0.037 ha.
- 2.2 The existing house has a garden to the front and left hand side with a small court yard to the rear. A private communal alleyway runs along the rear of the property, separated by a brick wall approximately 2 metres tall.
- 2.3 The London Borough of Richmond on Thames is the relevant planning authority for the site. The Council has designated the area in which the property is located as a Conservation Area. Thus all significant trees are protected and the council needs to be notified in writing prior to any trees works being undertaken, other than those agreed under planning permission.
- 2.4 Unauthorised works to protected trees may lead to prosecution.

### 3 Scope of Tree Survey

- 3.1 This report updates an earlier tree survey. The tree survey was conducted in accordance with the recommendations provided in British Standard 5837:2012 *Trees in relation to design, demolition and construction - Recommendations*. Only trees with a diameter greater than 7.5 cm at 1.5 metres height above ground level were included in the survey.
- 3.2 All trees within the site and those on adjacent properties that might be affected by the proposed development were included.
- 3.3 The parameters assessed for each tree, the methods used, and their limitations are described in **Appendix 1** to this report. The survey should be considered to be of a preliminary nature in some respects. If significant trees are considered worthy of retention but constrain development of a site it may be appropriate to examine the trees in more detail. This might entail examining the tree for fungal growth and wood decay particularly internally, using investigative tools such as ultrasound (PICUS tomography), drill (various tools) or climbing the tree to examine above ground structures. In some circumstances soil excavation may be appropriate to examine roots. Where heavy undergrowth or other features (e.g. ivy) hinder access or visibility of a tree their removal or reduction may be advisable prior to re-inspection of a tree. These methods and/or tools will be recommended where necessary but not on a precautionary basis unless significant safety issues are apparent.
- 3.4 The full British Standard methodology consists of a number of steps:
- A **tree survey** records the location of each tree along with estimates of size and quality. In particular, the life expectancy of each tree is assessed so that those trees expected realistically to provide long lasting benefits are identified.
  - A **tree constraints plan** plots the constraints, in terms of ground area, that each tree requires if it were retained. Both above (i.e. branches) and below ground (i.e. roots) constraints are considered. The above ground constraints are defined by branch length (i.e. crown size) whilst below ground constraints are assessed by defining a **root protection area** (RPA) for each tree. Typically, the RPA for each tree is at first defined as an area shaped as a circle with the tree located at

the circle's centre; modification of the RPA shape may be necessary to take into account the presence of infrastructure such as walls or poor rooting environments such as compacted soils and roads/paths.

- An **arboricultural impact assessment** assesses the impact of a particular referenced design on the surveyed trees, based on the footprint(s) of the proposed building(s), hard landscaping, paths, driveways etc. and space required for construction activity including material storage, machinery access, service runs and scaffolding. The impact assessment can only be as detailed as the information it is based on so may need to be revised as a project is planned in greater detail.
  - A **tree protection plan** shows the location of proposed fences to protect root protection areas around retained trees and to define **construction exclusion zone(s)** (CEZ). Where necessary RPAs will be protected using other measures such as ground protection.
  - Where building works are likely to be in close proximity to important trees a **method statement** may be required to both reassure Council planning officers and inform building site operations. An arboricultural method statement is best supervised by an on-site arboricultural supervisor.
- 3.5 This report provides the first four steps of the above and provides details of tree protection based on the information available at the time of writing. Once site working arrangements are known and documented in a construction method statement (or equivalent) the protection plan may need to be revised/updated.
- 3.6 Where valuable trees have been identified and are to be retained it is best to respect the identified root protection areas of these trees by avoiding building works within the root protection areas and routing access and service runs elsewhere.

## 4 Results of Tree Survey

- 4.1 Eight trees were recorded in the survey. Details of the trees are provided in **Appendix 3** to this report. Their locations are shown in **Figure 2** of this report.
- 4.2 None of the surveyed trees are of any great visual, botanical or landscape importance. None of the trees are veteran trees and there is no indication of ancient woodland on the site.
- 4.3 Using the BS5837 tree quality assessment categorisation (see **Appendix 2**) – one tree was graded Category "B" (Moderate quality trees) with the others graded Category "C" (Low quality trees). One tree was graded Category "U" (Unsuitable for retention) as it appears to be dead.

## 5 Tree Constraints on the site within surveyed area

- 5.1 The Conservation Area is an important consideration and prevents unilateral tree removal. However, the surveyed trees are of limited amenity value.

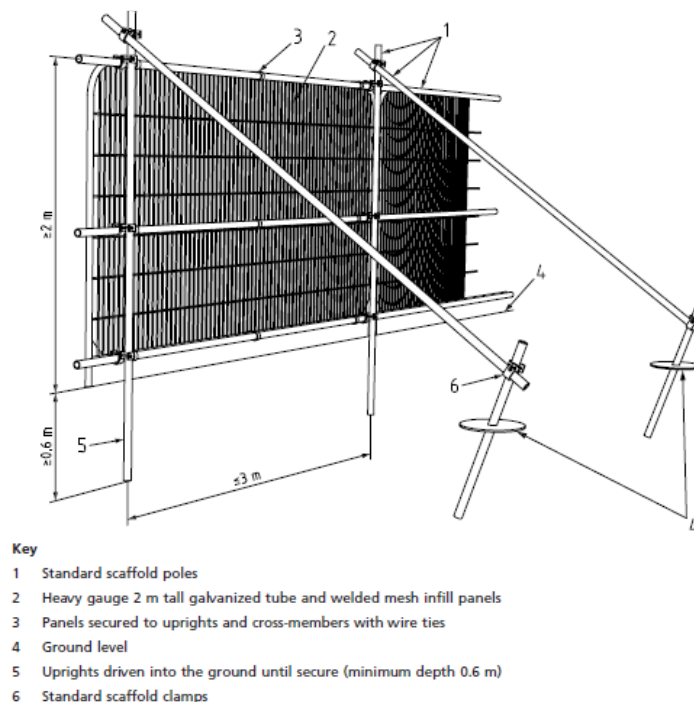
## 6 Arboricultural Impact Assessment

- 6.1 For the most part there should be no impact on the trees in the rear alleyway – T3 and T4. The rear wall should protect the above ground parts of these two trees, whilst the foundation of the wall should have directed root growth for both away from the garden of No 25 (as can be seen by some near-surface rooting). However, some root growth under the wall may be possible and these roots may be impacted particularly by excavation required by the new drive. A protective fence during construction will assist in minimising impact.
- 6.2 Since the original agreed development the health of the birch T5 appears to have deteriorated; as a result, it will need to be removed regardless of development plans.
- 6.3 Otherwise, all trees are to be retained and protective fencing installed during construction to protect them.

## 7 Tree Protection Plan

- 7.1 A tree protection plan is provided in **Figure 2**. It shows the proposed location(s) of protective fencing. The fencing will protect retained trees during construction and after necessary pruning has been undertaken.
- 7.2 All protective fencing for trees should be non-moveable continuous fencing to BS 5837:2012 standards.
- 7.3 The fence should consist of a framework of scaffolding established in the ground to ensure the fences' stability. Where space allows the scaffold-framework should be supported by diagonal supports. Wire mesh panels or similar protective material should be secured to the scaffold fence to ensure no routine access is possible to the root protection areas and to preserve their sanctity during construction. No service runs should be established within the root protection areas.
- 7.4 Appropriate sturdy and legible labels should be erected on the fencing to inform those on site of its purpose: **"Construction Exclusion Zone"** and/or **"Tree Protection Zone"** labels should be used, where appropriate.

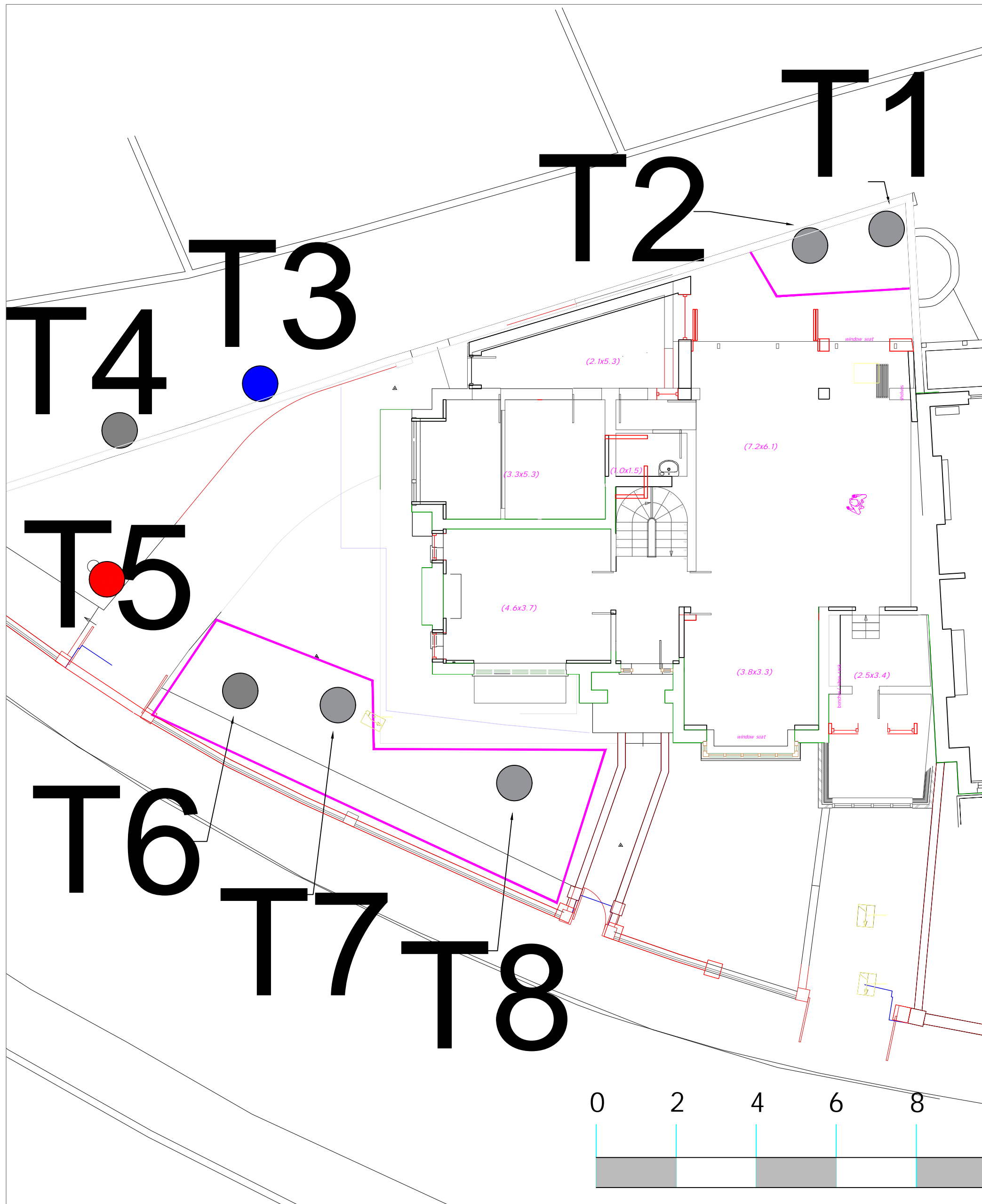
**Figure 1:** An example of tree protective fencing, based on BS5837:2012, showing key features. Site hoarding using plywood and semi-permanent posts is also adequate, provided liquid cement is not poured onto tree roots.



## 8 Method Statement

- 8.1 Other aspects related to trees that need attention during the planning and implementation phases include:
- 8.2 **Location of site office:** The site office(s) should not be located at any stage within the fenced root protection zone.
- 8.3 **On site storage of spoil and building materials:** During construction spoil from demolition or construction materials should **NOT** be stored within the marked root protection area(s). Any facilities on site for the storage of fuel oils, chemicals, cement/concrete should be sited well away from the marked root protection areas with suitable impervious bunds to prevent over flow. In the event of spillages, suitable onsite procedures should be followed as part of operational procedures.
- 8.4 **Fires:** No fires should be lit underneath any tree crowns.
- 8.5 **Crane(s):** In the event that a crane (either temporary or fixed) is used for construction purposes an exclusion zone should be established to prevent interference with tree crowns/branches.





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Drawing Based Upon: -

Status: **FINAL**

Notes:



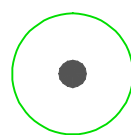
**Legend**

● Grade A trees

● Grade B trees

● Grade C trees

● Tree to be removed



Tree location showing crown dimensions (green)



Heras fencing

Client: Karen Gilbert

Project: 25 St Georges Rd

Title: Tree Impact & Protection Plan

Date: 15/6/21 Scale: 1:100 Original Paper Size: A3

Drawn: JH Checked: - Job Ref: 18019

Figure Number: **2**

Rev: **A**

## Appendix 1 - Notes & Limitations of the Tree Survey

Data collected on each recorded tree reflects the recommendations provided in paragraphs 4.4.2.5 of British Standard 5837:2012. Deviations from the recommendations of the British Standard are described and justified below.

The report does **NOT** necessarily comply with NHBC Chapter 4.2.3 in terms of recording ALL currently small but potentially large trees, hedgerows and shrubs on the site and on adjacent sites. It does however identify currently significant trees with stem diameters greater than 7.5 cm and any significant tree stumps that are found during the survey. Other vegetation (e.g. shrubs and removed stumps) cleared prior to the tree survey has not been recorded. The tree survey is guided by the topographic survey, where provided by the client, to identify the area of interest and the individual trees that need to be surveyed. Trees missing from the topographic survey may be manually added if thought significant during the tree survey; the tree survey may also record a group of individual trees as one group rather than record individual stems. Where a structural engineer considers the tree survey does not provide adequate detail for their purposes it is recommended that the engineer makes contact with the arboriculturist to obtain further information if available.

### ***Third party trees on adjacent land***

In most cases the tree survey has been undertaken from within the confines of the client's land and relevant boundaries. The roots and branches of some trees on adjacent land may grow into and over the surveyed site and, even if this is not visibly obvious, may provide constraints to development on the surveyed site. Access to trees on adjacent land is unlikely to have been prearranged and thus cannot be assumed. Thus, where third party trees are listed as surveyed and data appears in the survey sheet, estimates of both tree size and condition are likely to have been estimated without physically visiting the third-party trees. In some cases, lack of access and visibility may lead to our assessment of third party trees to be less than complete. Further discussion with Duramen Consulting Ltd is recommended where third-party trees constrain development of a site.

The following abbreviations and conventions have been used in this report. Please note the limitations in **bold**, particularly with regards to tree stability and resulting safety issues.

**Tree Number:** T (individual tree), G (group of stems/trees, possibly of coppice origin (i.e. originating from a single tree) or several trees planted together or self-seeded) or S (stump of tree, normally cut at or nearby ground level). Shrubs (Sh) may also be recorded where they are considered to provide amenity or privacy that it may be desirable to retain post development.

**Species:** Commonly known name; Scientific name is recorded separately, if considered significant and useful.

**Height:** Height of a tree can normally be estimated with a clinometer where adequate visibility allows lines of sight to be established with both the base and top of the tree. To provide an accurate estimate of height, these sightlines should stretch to a distance from the tree at least as great as the tree is high (i.e. 20m for

a 20m tall tree). Where several trees of similar height grow nearby it is reasonable to measure one tree and estimate the heights of nearby trees by comparison.

In small gardens and restricted places where this is not possible, height may have to be estimated based on the surveyor's experience. No record is normally made of which trees were used as reference trees. Tree heights from a ground survey (where available) can also be used as reference heights.

Stem Diameter: Larger stems which are likely to define the edge of root protection areas are normally measured at 1.5m above ground level with a diameter tape to the nearest millimetre. Those trees that are less likely to define the edge of the root protection area, or which were difficult to access may have been assessed visually by use of reference instruments such as tape measures or other objects of known size (e.g. a sheet of A4 paper – 21 x 30 cm). Where ivy and other vegetation such as holly, or slope or other considerations prevent accurate measurement the diameter estimate is marked with a \* to show it is approximate. Estimates are stated in millimetres.

Where more than one shoot grows at 1.5m above ground level, the diameter has not been measured at 1.5 m but above the root flare, normally where diameter is smallest between 0.2 and 0.5m above the ground. Such estimates will be recorded as "RF".

Branch spread: This parameter records the radial distances between the tree trunk and the end of the furthest branches in the direction of the four cardinal compass points. Where light conditions allow these have been measured on the largest trees using a laser device to the nearest 0.1m. In most cases however, unless the crowns look visibly uneven due to branch loss or neighbouring competing vegetation, circular crowns are assumed, and only one figure is reported.

Crown Clearance: This parameter estimates the lowest point of the crown from the ground. Minor and dead branches are ignored.

Age Class: Y: Young; M: Middle Aged; MT: Mature; OM: Over Mature; V: Veteran

Physiological Condition: Good (healthy); Fair (some signs of lack of vigour and/or poor health); Poor (definite signs of lack of vigour and/or poor health); Dead

Structural Condition: Comments on structural condition of trees are restricted to what was seen of each tree - access and/or visibility restrictions may limit the scope of the assessment; a complete health and safety audit was **NOT** conducted, but where defects were observed that need further investigation a recommendation for more detailed examination may be provided. Alternatively, an annual inspection may be recommended (e.g. of a roadside tree). If the tree is of little further value, removal of the tree may be recommended without further investigation suggested.

**Observations on tree health and structural condition and stability and resulting recommendations may change with time.** Trees are living organisms and climatic events (e.g. strong wind, drought, lightning, floods), human actions (e.g. vehicles, machinery, vandalism, application of chemicals) and other vectors (e.g. pests & diseases) may alter the health and/or structural stability of trees over relatively short periods of time. Annual reassessments are recommended for most trees that occur nearby property, areas of frequent use and other areas where a duty of care might be considered to apply. **Thus, our assessment of structural**

**condition is valid on the day of inspection** and for the vast majority of trees should be adequate for twelve months from the date of the survey. In a small proportion of cases however trees may appear healthy and structurally sound on the day of inspection, provide little or no sign of having health, stability or structural problems but rapidly deteriorate at a later date or over a period of time. Vigilance is therefore recommended and if signs of significant structural or health change are seen, further professional advice should be sought. **No liability can be accepted for any structural deterioration of the tree occurring after the date of our inspection or that was not visible on the day of inspection.**

**Where this report is relied upon at a later date and in particular over 12 months from the date of the tree survey, the reader should be aware that the structural condition and health of the surveyed trees may have changed and a re-inspection may lead to significantly different observations, recommendations and conclusions. This is especially important where trees cause significant constraints to development of a site.**

Where an inspector from Duramen Consulting has seen what he or she considers to be a "dangerous" tree the inspector will attempt to inform a responsible person on site verbally and for both occupied and non-occupied sites the nature of the danger provided by the tree will be recorded in the data sheet.

Additionally, some tree structural defects may be difficult to see through other vegetation such as brambles or tall herbaceous plants, ivy and other climbers growing on stems; in some situations, visibility is restricted through lack of 360<sup>o</sup> access to the base of the tree. Partial sight of one side of a tree may mean that serious defects can be overlooked. Cutting the main stems of climbers around the base of each tree is recommended in many cases. Such cutting should lead to their death over several years and allow a more thorough visual inspection at a later date once the climber has been removed or naturally decayed and fallen off. Species such as ivy may provide habitats for a variety of wildlife species, some of which, like bats, may be legally protected. In some situations, cases further advice on wildlife legislation may be advisable (see below).

Preliminary Management Recommendations: Where action is recommended a preliminary suggestion is made. Further discussion is likely to be needed to assess the need and its priority. Removal of ivy may be useful; crown pruning to remove dead wood may be recommended if new buildings are to be erected nearby a tree or if access to the tree is likely to increase; sometimes complete tree removal may be suggested. The action recommended is the minimum required and may not include other factors such as the desire to keep the tree in an attractive shape or stump removal.

Estimated Remaining Life Contribution: No standardised method is recognised for making estimates of remaining life span of a tree. The estimates given are based on a rapid assessment of the health and structural condition AND the location of the tree in relation to any targets. Thus, a roadside tree with a particular defect may be given a lesser life expectancy than a similar tree located deep in rarely visited woodland.

Category Grading: British Standard 5837 (BS) suggests the use of four categories for tree quality - three for tree retention (A, B and C) and one for unsuitability (U). For retained trees, three subcategories are suggested by the BS - arboricultural

(1), landscape (2) and cultural/conservation (3). Grade "A" trees are of high quality and value making a substantial contribution with a life expectancy over 40 years. Grade "B" trees are of moderate quality and value making a significant contribution with a life expectancy over 20 years; Grade "C" trees are of low quality and value with a life expectancy over 10 years or young trees with a stem diameter less than 150mm.

Category "U" trees are mostly recommended for removal due to serious, irremediable structural defects or health conditions but in some cases their retention may be desirable.

Appendix 2 contains further details of the BS categories.

Wildlife considerations: Legislation in the United Kingdom protects a range of plant and animal species. The two groups of protected animals most commonly encountered with regards to trees are birds and bats. Trees by their very nature have structures that may allow bats to shelter or roost in them. These include cracks in bark, ivy growth and crevices and cracks in structural wood of both bole and branches that may develop over the lifetime of a mature tree. Reasonable care must be taken whilst undertaking any tree work to identify the presence of bats and/or bat roosts. Work must stop if any are found and advice sought from an appropriately licensed person. A qualified bat ecologist should be able to provide more detailed advice.

The tree survey described and recorded in this report did **NOT** include a scoping survey for protected species. Up to date details of such protection, including birds and their nests is best sought from a qualified ecologist.

## Appendix 2: British Standard 5837 categorisation for tree quality

Category and definition	Criteria (including subcategories where appropriate)		
<b>Trees unsuitable for retention (see Note)</b>			
<p><b>Category U</b> Those in such a condition that they <b>cannot realistically be retained</b> as living trees in the context of the current land use for longer than 10 years</p>	<ul style="list-style-type: none"> <li>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)</li> <li>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</li> <li>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</li> </ul> <p>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve</p>		
<i>Sub Categories:</i>	<b>1 Mainly arboricultural qualities</b>	<b>2 Mainly landscape qualities</b>	<b>3 Mainly cultural values + conservation</b>
<b>Trees to be considered for retention</b>			
<p><b>Category A</b> Trees of <b>high quality</b> with an estimated remaining life expectancy of at least 40 years</p>	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)
<p><b>Category B</b> Trees of <b>moderate quality</b> with an estimated remaining life expectancy of at least 20 years</p>	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
<p><b>Category C</b> Trees of <b>low quality</b> with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm</p>	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

**Tree data for 25 St George's Rd**

**Date of survey:** updated from 2019

**Arboricultural Consultant/surveyor:**

**JH**

**Tagged:** No

**Weather & Light conditions:**

Cold

Intermittent  
rain

Overcast

Strong Wind

Tag Number	Number of stems	Species (Common Name)	Height (m)	Stem diameter (mm)	Branch spread (m) North, East, South, West				Height of crown clearance (m)	Age class	Estimated remaining contribution (years)	Growth Potential	Structural condition (pole, forks, wounds, decay, dead wood)	Physiological Condition	Other Comments - Ivy, Competing Crowns, Open Grown	Root Protection Area (radius equiv m)	BS 5837 Category Grading
1	multi	Acacia	3	150	1	1	1	1	1	Mature	20 - 40 years	Low	heavily cut back	Good		1.8	C2
2	1	Cypress	4	100	1	1	1	1	1	Mature	20 - 40 years	Low	browning foliage	Good		1.2	C2
3	1	cherry laurel	7	362	4	4	5	4	3	Mature	20 - 40 years	Low	crown lifted over path; 2 trees?	Good		4.3	B2
4	1	holly	7	200	3	2	1	4	3	Mature	20 - 40 years	Low		Good		2.4	C2
5	2	birch	18	526	4	4	4	4	3	Mature	20 - 40 years	Low	N smaller with lost top (on ground)	Dead	appears leafless	6.3	U
6	1	apple	3	300	2	2	2	2	2	Mature	20 - 40 years	Low	pruned to 2 metres with regrowth	Good		3.6	C2
7	1	apple	3	200	1	1	1	1	2	Mature	20 - 40 years	Low	pruned to 2 metres with regrowth	Good		2.4	C2
8	1	apple	3	200	1	1	1	1	2	Mature	20 - 40 years	Low	pruned to 2 metres with regrowth	Good		2.4	C2

Category: A: High Value - Light Green; B: Moderate Value - Mid Blue; C: Low Value - Grey; U: Unsuitable for Retention - Red