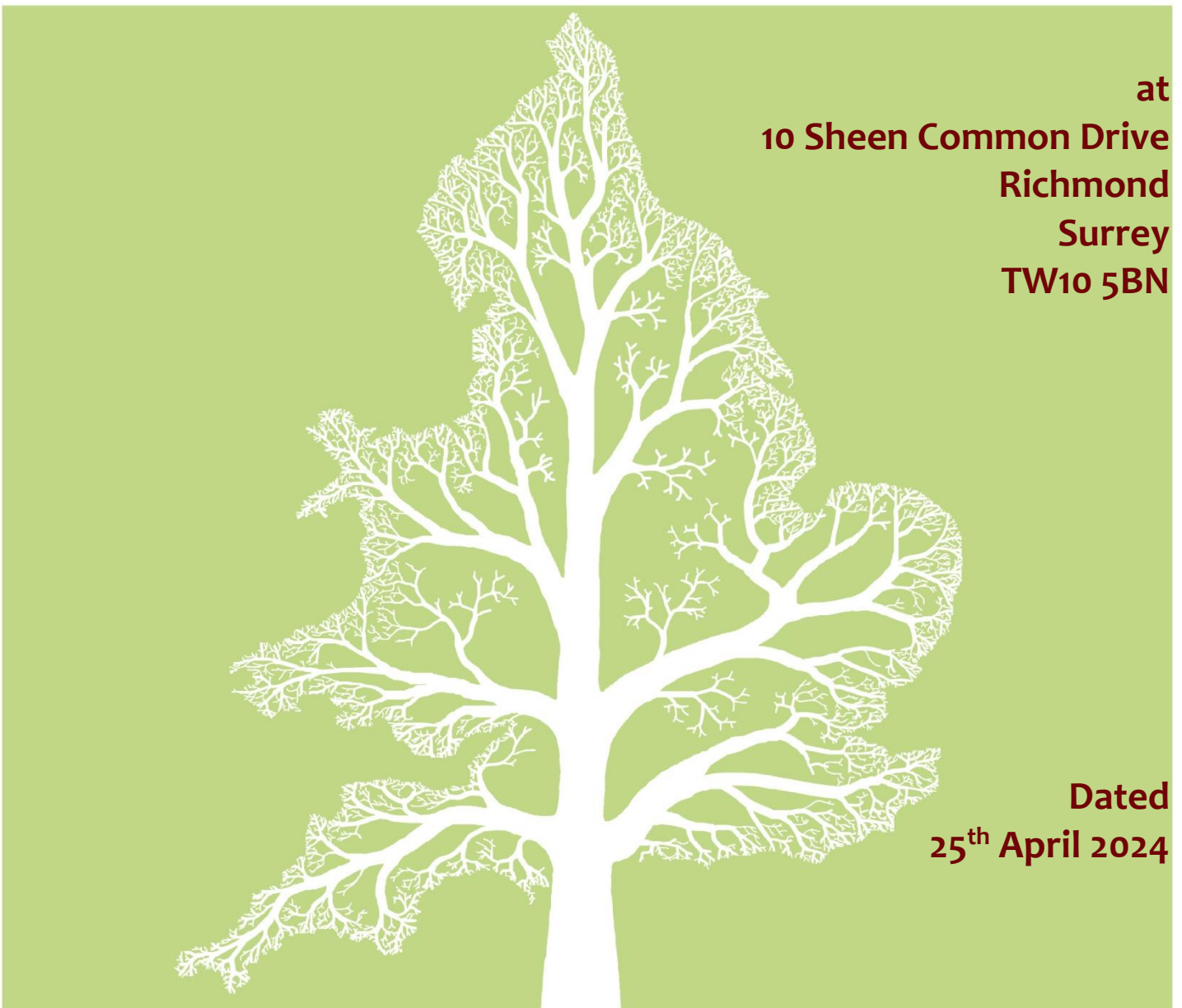


BS 5837 Arboricultural Report

Impact Assessment



at
10 Sheen Common Drive
Richmond
Surrey
TW10 5BN

Dated
25th April 2024



Branching out through England and Wales

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1. Introduction

1.1. Instruction

1.1.1. We are instructed by Michael Jones Architects to:

- Undertake a Tree Survey to BS 5837 at 10 Sheen Common Drive and assess all trees potentially within influencing distance of proposed development within the site.
- Plot the trees on a Tree Constraints Plan and record the data in a Tree Data Schedule.
- Provide an overview of the site and any management recommendations.
- Determine if any trees are growing within a conservation area or are protected by a tree preservation order.
- Assess the potential impact of the development proposals and provide guidance as to appropriate mitigation measures.
- Produce an Arboricultural Impact Assessment for submission to the local authority.

1.2. Purpose of this Report

1.2.1. This report is produced according to the guidance and recommendations within *BS 5837: 2012 - Trees in Relation to Design, Demolition, and Construction*. It is tailored to accompany a planning application. It assesses the impact of all proposed construction works on the tree population. Tree removal, canopy pruning, and the impact upon roots from various groundworks are all considered in detail. Best practice mitigation is specified wherever appropriate.

1.2.2. Consideration is also given to the impact of the changed juxtaposition between trees and buildings and how that may influence future tree management.

1.2.3. This document should not be used to inform management decisions relating to liability or risk management. Such decisions should be based on a more detailed inspection of the trees than was carried out for this report.

1.3. References

1.3.1. We have liaised with our client and studied topographical surveys and projected ground levels to attain an adequate understanding of the project to enable us to carry out an accurate assessment of the proposals.

1.4. Survey Details

1.4.1. A visual ground-level assessment of all trees was undertaken on the 25th of April 2023 by Carl Lothian. No climbed inspections or specialist decay detection were undertaken. Details of how the survey was undertaken can be found in Appendix 1.

1.4.2. The tree locations shown on the accompanying drawings are based on a measured drawing of the site supplied to Crown Tree Consultancy. This drawing had the tree positions already plotted. Where applicable, additional trees have been plotted by us according to measurements taken on-site.

1.5. Author

1.5.1. This report was compiled by Joe Taylor - FdSc (Arboriculture), M. Arbor A. Details of the author's experience that qualify him to produce such a report are detailed in Appendix 4.

2. Site Overview

2.1. Brief Site Description

- 2.1.1. Number 10 Sheen Common Drive is a detached residential property with gardens to the front and rear.
- 2.1.2. The front garden (see Photographs 6-7) contains one Retention Category C tree (T2) and one Retention Category B tree (T1). Surfaces consist predominantly of paving stones.
- 2.1.3. The rear garden (see Photographs 1-5) contains seven Retention Category C trees (T3, T4, T5, T6, T8, T10 and T12)) and three Retention Category U trees (T7, T9 and T11). These trees are mostly located towards the rear of the garden. Surfaces consist predominantly of grass, with a paved area adjacent to the main property.
- 2.1.4. In adjacent gardens are two Retention Category C apple trees (T13 and T14). The Root Protection Areas of these trees extend into the site.
- 2.1.5. Along the woodland edge to the rear of the site are two Retention Category A oak trees. The canopies and Root Protection Areas of these trees extend within the sites.
- 2.1.6. The site is approximately flat, although there is a significant level change between the main property and the rear garden, with steps between the two.
- 2.1.7. Boundaries consist predominantly of timber panel fencing, with brick walls to the front of the property.
- 2.1.8. The Tree Constraints Plan and Tree Data Schedule (see Appendix 6) should be referred to for descriptions and locations of all trees.

2.2. Coordinates

- 2.2.1. The site coordinates are 51°27'42.45"N 0°16'58.42"W, and the altitude is approximately 13m above sea level¹.

2.3. Survey Extent

- 2.3.1. The area indicated below² shows the extent of our survey. Our survey included all trees within the curtilage of the property and those adjacent to it.



¹ To access satellite imagery and street views of the site these co-ordinates may be entered into: <http://maps.google.co.uk/>

² Image taken from Google Earth and may not be current

3. Vegetation Overview (independent of proposals)

This section summarises all the recommendations within the Tree Data Schedule regardless of whether trees are to be retained, felled or pruned to facilitate the proposed development. It does not specify works that may be required to facilitate the development proposals.

3.1. Preliminary Management Recommendations

- 3.1.1. The following recommendations are made to maintain the trees in an acceptable condition:
- 3.1.2. Trees that are potentially hazardous and will require removal to prevent potentially significant damage due to tree or limb failure are T7, T9 and T11.
- 3.1.3. The removal of T7 and T9 is considered to be of low priority due to the size and location of these trees.
- 3.1.4. The removal of T11 is considered to be of a moderate priority due to the extent of basal decay and proximity of the tree to the site boundary.
- 3.1.5. All other trees were deemed to be in satisfactory condition.

3.2. Work Priority and Future Inspections

- 3.2.1. The table below suggests a schedule for completing the works recommended in the Tree Data Schedule based on the perceived risk:

Work Priority	Definition	Tree Number
Urgent	As soon as possible	None
Very High	Within 1 Month	None
High	Within 3 Months	None
Moderate	Within 1 year	T11
Low	Within 3 years	T7 and T9

- 3.2.2. The table below suggests a schedule of future inspections based on the condition and location of each tree:

Inspection Frequency (years)	Tree Number
0.5	None
1	None
1.5	None
3	All trees surveyed

- 3.2.3. The trees should be inspected sooner if there is a noticeable decline in their condition or following extreme weather events.

3.3. Species Present – Additional Information

- 3.3.1. The table below contains general information about the tree *species* (rather than the actual tree *specimens*) included in the survey. Its purpose is to assist readers who are unfamiliar with the characteristics of the various species.

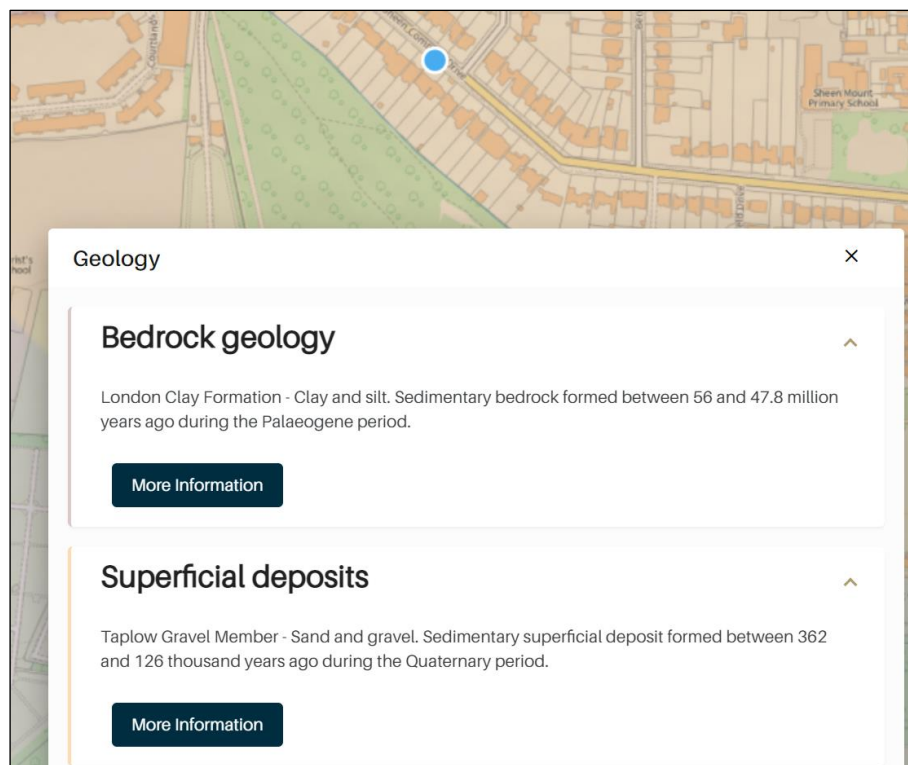
Species	Typical Height at Maturity (m)	Typical Canopy Spread at Maturity (m)	General Notes
Apple	6	8	Deciduous tree native across Europe and W. Asia. Hundreds of cultivars available due to its popular fruit. Flowers white, pink or red in spring. Some species will self pollinate. Most species have a relatively untidy habit. Older specimens are susceptible to a variety of rusts, moulds and cankers. Excellent habitat tree. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Malus+domestica for more info.
Beech	25	18	Deciduous tree native to W and S Europe. Does not have resilient heartwood, therefore typically lives for 100 - 150 years before decay may cause structural failure if unmanaged. Can be an extremely attractive tree at maturity due to its size and majesty. Young branches may retain their foliage through winter as is evidenced in beech hedges. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Fagus+sylvatica for more info.
Holly	16	12	Evergreen tree native across Western Europe. Many cultivars available, often with variegated leaves. Females produce bright red berries. Good wildlife value. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Ilex+aquifolium for more info.
Magnolia	7	8	Small tree or large shrub, favoured for its large, ornamental flowers. About 80 species and numerous cultivars are available, both deciduous and evergreen. Leaves always untoothed and sometimes very large. Large silky flower buds and berries dangling from unusual 'knobbly cucumber' fruits.
Oak	22	18	Deciduous, long lived tree native and common throughout Europe with very durable timber. Excellent habitat tree - provides food and shelter for thousands of native species. Can be very attractive as a mature open grown specimen though not particularly ornamental, having no autumn colour or showy flowers. Responds well to pruning. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Quercus+robur for more info.
Pear	8	8	Deciduous tree native across Europe and W Asia. Hundreds of cultivars available due to its popular fruit. White flowers in spring along with bright green foliage. More upright growth habit than most apples.
Silver Birch	16	10	Deciduous native tree. A pioneer species requiring good lighting levels that will readily colonise open ground. Relatively short lived and surpassed in woodland by dominant species such as oak and beech. Attractive white bark and graceful, delicate form make this a popular garden tree. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Betula+pendula for more info.
Yew	14	12	Evergreen species native throughout Europe. Commonly planted in churchyards. Once revered by ancient Britons and thought to be the inspiration for our Christmas tree. Capable of remarkable regeneration and extreme longevity. Poisonous foliage and seeds. Slow growing. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Taxus+baccata for more info.

The figures quoted regarding typical height and canopy spread should be treated as approximate. Actual heights and spreads vary according to several environmental factors such as soil conditions, climate, and the presence of competing vegetation. The figures quoted are not the maximum dimensions that the species may attain.

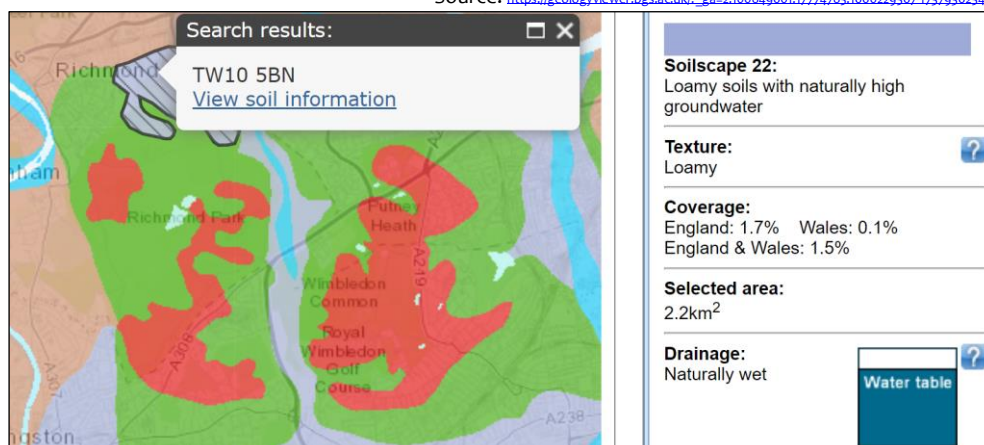
4. Local Geology and Soils

4.1. Desktop Research

4.1.1. Desktop research into local geology based on the postcode TW10 5BN obtained the following results:



Source: https://geologyviewer.bgs.ac.uk/?_ga=2.100849601.17774785.1660229567-1737936254.1660229567



Source <http://www.landis.org.uk/soilscapes/>

4.2. Site Investigations

4.2.1. We are unaware of any specific investigations into soil properties at the site.

4.3. Conclusion and Relevance

4.3.1. Based on the information reproduced in Section 3.1, local soils are assumed to have a loamy texture.

4.3.2. Loamy soils contain a mixture of clay and sand. Soil compaction may occur due to vehicular activity on building sites, so ground protection is recommended wherever vehicles operate. Most tree species will grow well in loamy soils.

5. Statutory Protection – TPOs and Conservation Area Status

Before undertaking most works on trees protected by a tree preservation order³, consent needs to be formally obtained from the local authority. Where trees are in a conservation area (but not protected by a TPO), works are generally not permitted without first giving the local authority six weeks' notice of intention⁴. Unauthorised works to protected trees, or trees in a conservation area, may result in criminal prosecution and a fine. Where works are required to implement a fully approved development, no such consent or notice is required.

5.1. Desktop Research

5.1.1. On the 24th of April 2023, we accessed the local authority website. A screenshot is produced below:



5.1.2. This indicates that:

- The site is within the Sheen Common Drive Conservation area.
- There are no tree preservation orders affecting trees within the site.
- There are tree preservation orders affecting trees immediately adjacent to the site. T16 is believed to be affected (our numbering system).

5.2. Felling Licences

5.2.1. Felling licences issued by the Forestry Commission are sometimes required before removing trees. However, these licenses are aimed toward woodland and forestry management. Felling licences are NOT required for any of the following:

- Lopping, topping or pollarding.
- Removal of small trees (stem diameter less than 8cm) or fruit trees.
- Works to any trees growing within domestic gardens, orchards, or the Inner London boroughs.
- Operations involving less than five cubic meters of timber in any quarter year.
- Thinning and understorey clearing operations.
- Dangerous trees, nuisance trees, some diseased trees.
- Where removal is required to enable a fully approved development.

5.2.2. More detailed guidance can be found at <https://www.gov.uk/government/publications/tree-felling-getting-permission>

5.2.3. Hence a felling licence is **not** required relating to the trees surveyed within the property.

³ <https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas>

⁴ During this time, the local authority may elect to create a tree preservation order or to inform the applicant that they have no objection to the proposed works. If the local authority does not respond within six weeks, then the intended work may be undertaken. Note: the local authority cannot refuse consent for works to trees within a conservation area; they may only create a tree preservation order if they wish to have further control over what works are undertaken.

6. Planning Policy Context

6.1. National Policy

6.1.1. The National Planning Policy Framework 2021 Policy 12, Paragraph 131 is specifically aimed at urban trees:

131. Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined⁵⁰, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.

6.1.2. Policy 15, Paragraphs 174, 175, and especially 179 and 180 are aimed at conserving and enhancing the natural environment, habitat and biodiversity. All trees provide some habitat and increase the biodiversity of a site. Native trees such as oaks can support an abundance of algae, lichens, mosses, insects, birds, fungi, reptiles and even mammals.

15. Conserving and enhancing the natural environment

174. Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

175. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework⁵⁰; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

Habitats and biodiversity

179. To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity⁵¹; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation⁶²; and
- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

180. When determining planning applications, local planning authorities should apply the following principles:

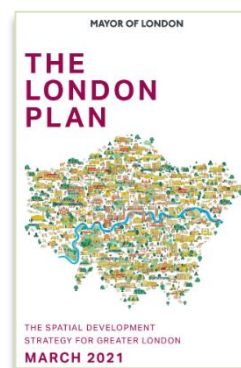
- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁶³ and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

181. The following should be given the same protection as habitats sites:

- a) potential Special Protection Areas and possible Special Areas of Conservation;
- b) listed or proposed Ramsar sites⁶⁴; and
- c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

6.2. Regional Policy

- 6.2.1. The London Plan 2021⁵ is the Spatial Development Strategy for Greater London. It sets out a framework for how London will develop over the next 20-25 years and the Mayor's vision for Good Growth.
- 6.2.2. The Plan is part of the statutory development plan for London, meaning that the policies in the Plan should inform decisions on planning applications across the capital. Borough's Local Plans must be in general conformity with the London Plan, ensuring that the planning system for London operates in a joined-up way and reflects the overall strategy for how London can develop sustainably, which the London Plan sets out⁶.
- 6.2.3. Chapter 8 relates to the natural environment. Within this chapter, Policies G1 and G2 promote green infrastructure and stress the importance of conserving London's Green Belt. Policies G3 and G4 relate to Metropolitan Open land and Open Space. Whilst trees are an intrinsic part of all of the above; they are not specifically mentioned in these policies.



- 6.2.4. Policy G5 is relevant to this report as it promotes the greening of London by including the planting of new trees and retaining existing trees where possible.

Policy G5 Urban greening

- A Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.
- B Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. The UGF should be based on the factors set out in Table 8.2, but tailored to local circumstances. In the interim, the Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development (excluding B2 and B8 uses).
- C Existing green cover retained on site should count towards developments meeting the interim target scores set out in (B) based on the factors set out in Table 8.2.

Table 8.2 - Urban Greening Factors

Surface Cover Type	Factor
Semi-natural vegetation (e.g. trees, woodland, species-rich grassland) maintained or established on site.	1
Wetland or open water (semi-natural; not chlorinated) maintained or established on site.	1
Intensive green roof or vegetation over structure. Substrate minimum settled depth of 150mm – see livingroofs.org for descriptions. ^A	0.8
Standard trees planted in connected tree pits with a minimum soil volume equivalent to at least two thirds of the projected canopy area of the mature tree – see Trees in Hard Landscapes for overview. ^B	0.8
Extensive green roof with substrate of minimum settled depth of 80mm (or 60mm beneath vegetation blanket) – meets the requirements of GRO Code 2014. ^C	0.7
Flower-rich perennial planting – see RHS perennial plants for guidance. ^D	0.7
Rain gardens and other vegetated sustainable drainage elements – See CIRIA for case-studies. ^E	0.7
Hedges (line of mature shrubs one or two shrubs wide) – see RHS for guidance. ^F	0.6
Standard trees planted in pits with soil volumes less than two thirds of the projected canopy area of the mature tree.	0.6
Green wall – modular system or climbers rooted in soil – see NBS Guide to Façade Greening for overview. ^G	0.6
Groundcover planting – see RHS Groundcover Plants for overview. ^H	0.5
Amenity grassland (species-poor, regularly mown lawn).	0.4
Extensive green roof of sedum mat or other lightweight systems that do not meet GRO Code 2014. ^I	0.3
Water features (chlorinated) or unplanted detention basins.	0.2
Permeable paving – see CIRIA for overview. ^J	0.1
Sealed surfaces (e.g. concrete, asphalt, waterproofing, stone).	0

- 6.2.5. Further guidance on the UFG has been prepared by the Greater London Authority and can be found here: <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/london-plan-guidance/urban-greening-factor-ugf-guidance> A [UGF calculator](#) tool has also been prepared to help applicants calculate the score of a scheme and present the score as part of their application.
- 6.2.6. Policy G6 promotes biodiversity and access to nature, though trees are not specifically mentioned.

- 6.2.7. Policy G7 is of most relevance to this report as it specifically relates to trees and woodlands:

Policy G7 Trees and woodlands

- A London's urban forest and woodlands should be protected and maintained, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London's urban forest – the area of London under the canopy of trees.
- B In their Development Plans, boroughs should:
- 1) Protect 'veteran' trees and ancient woodland where these are not already part of a protected site.
 - 2) Identify opportunities for tree planting in strategic locations.
- C Development proposals should ensure that, wherever possible, existing trees of value are retained⁷. If planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.

⁵ https://www.london.gov.uk/sites/default/files/the_london_plan_2021.pdf

⁶ <https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/london-plan-2021>

⁷ Category A, B and lesser category trees where these are considered by the local planning authority to be of importance to amenity and biodiversity, as defined by BS 5837:2012



6.3. Richmond Local Policy

- 6.3.1. The London Borough of Richmond and Thames Local Plan sets out policies and guidelines for development within the Borough from 2018 until 2033. It surpasses the previous *Core Strategy* and *Development Management Plan*.
- 6.3.2. The *Spatial Strategy* set out within the Local Plan includes twenty *core planning policies* on matters including climate change, housing, employment and retailing. Core policies from the Local Plan begin with the letters LP. More detailed policies for the management of development begin with the letters DM.
- 6.3.3. Within the Local Plan, the **core policies** of most relevance to this report are LP16 and LP15

Policy LP 15

Biodiversity

A. The Council will protect and enhance the borough's biodiversity, in particular, but not exclusively, the sites designated for their biodiversity and nature conservation value, including the connectivity between habitats. Weighted priority in terms of their importance will be afforded to protected species and priority species and habitats including National Nature Reserves, Sites of Special Scientific Interest (SSSI) and Other Sites of Nature Importance as set out in the Biodiversity Strategy for England, and the London and Richmond upon Thames Biodiversity Action Plans. This will be achieved by:

1. protecting biodiversity in, and adjacent to, the borough's designated sites for biodiversity and nature conservation importance (including buffer zones), as well as other existing habitats and features of biodiversity value;
2. supporting enhancements to biodiversity;
3. incorporating and creating new habitats or biodiversity features, including trees, into development sites and into the design of buildings themselves where appropriate; major developments are required to deliver net gain for biodiversity, through incorporation of ecological enhancements, wherever possible;
4. ensuring new biodiversity features or habitats connect to the wider ecological and green infrastructure networks and complement surrounding habitats;
5. enhancing wildlife corridors for the movement of species, including river corridors, where opportunities arise; and
6. maximising the provision of soft landscaping, including trees, shrubs and other vegetation that support the borough-wide Biodiversity Action Plan.

B. Where development would impact on species or a habitat, especially where identified in the relevant Biodiversity Action Plan at London or local level, or the Biodiversity Strategy for England, the potential harm should:

1. firstly be avoided (the applicant has to demonstrate that there is no alternative site with less harmful impacts),
2. secondly be adequately mitigated; or
3. as a last resort, appropriately compensated for.

Policy LP 16

Trees, Woodlands and Landscape

A. The Council will require the protection of existing trees and the provision of new trees, shrubs and other vegetation of landscape significance that complement existing, or create new, high quality green areas, which deliver amenity and biodiversity benefits.

B. To ensure development protects, respects, contributes to and enhances trees and landscapes, the Council, when assessing development proposals, will:

Trees and Woodlands

1. resist the loss of trees, including aged or veteran trees, unless the tree is dead, dying or dangerous; or the tree is causing significant damage to adjacent structures; or the tree has little or no amenity value; or felling is for reasons of good arboricultural practice; resist development that would result in the loss or deterioration of irreplaceable habitat such as ancient woodland;
2. resist development which results in the damage or loss of trees that are considered to be of townscape or amenity value; the Council will require that site design or layout ensures a harmonious relationship between trees and their surroundings and will resist development which will be likely to result in pressure to significantly prune or remove trees;
3. require, where practicable, an appropriate replacement for any tree that is felled; a financial contribution to the provision for an off-site tree in line with the monetary value of the existing tree to be felled will be required in line with the 'Capital Asset Value for Amenity Trees' (CAVAT);
4. require new trees to be of a suitable species for the location in terms of height and root spread, taking account of space required for trees to mature; the use of native species is encouraged where appropriate;
5. require that trees are adequately protected throughout the course of development, in accordance with British Standard 5837 (Trees in relation to design, demolition and construction – Recommendations).

The Council may serve Tree Preservation Orders or attach planning conditions to protect trees considered to be of value to the townscape and amenity and which are threatened by development.

Landscape

1. require the retention of important existing landscape features where practicable;
2. require landscape design and materials to be of high quality and compatible with the surrounding landscape and character; and
3. encourage planting, including new trees, shrubs and other significant vegetation where appropriate.

6.3.4. Policy LP15 is aimed at conserving and enhancing the natural environment, habitat and biodiversity. All trees provide some habitat and increase the biodiversity of a site, so Policy LP15 is relevant to this report. Native trees such as oaks can support an abundance of algae, lichens, mosses, insects, birds, fungi, reptiles and even mammals.

6.3.5. On page 55 of the Local Plan, the guidance relating to Policy LP 16 states the following:

5.5.3 Development proposals are required to retain and protect existing trees, and minimise any impacts on trees, shrubs and other significant vegetation, including through the provision of sufficient space for the crowns and root systems of existing and proposed trees and their future growth. Developer contributions towards trees within the public realm may be required where appropriate (see the Council's Planning Obligations SPD).

5.5.4 It is important that species are chosen that are appropriate to the scale of their surroundings and public amenity, and guidance should be sought from relevant experts. The Council encourages the use of native species where appropriate. However, it is acknowledged that native species may not always be the most suitable choice, such as in certain historic landscapes, where there is an existing positive character of distinctive non-native trees. There may also be other particular situations where the use of non-native species may be beneficial. In addition, the Council encourages schemes that include large trees, where appropriate, as evidence suggests that the larger the tree, the greater the benefits to both amenity and ecosystems.

5.5.5 An appropriate replacement for any tree that is felled will be required on-site where practicable. Where this is not possible, the Council will require a financial contribution to provide an off-site street tree. The Council will use the methodology set out in 'Capital Asset Value for Amenity Trees' (CAVAT) for calculating the monetary value and/or compensation where a tree is felled or damaged.

6.3.6. Trees are also mentioned in the explanation of policies LP20 and LP21 in relation to the potential of trees to mitigate against urban heat islands and to form part of SUDs plans.

6.3.7. Policy LP 12 Green infrastructure and LP 13 Green Belt, Metropolitan Land and Local greenspace are not relevant to development proposals unless open spaces such as parks or Green belt are affected.

6.3.8. Within The Local Plan, the **detailed policies** of relevance to development near trees are set out below:

Policy DM DC 4

Trees and Landscape

The boroughs trees and landscape will be protected and enhanced by:

- The use of Tree Preservation Orders (TPOs) where appropriate;
- Planting and encouraging others to plant trees, clumps and thickets particularly in areas of deficiency as shown on the Proposals Map and of a type and species as set out in the Borough's Tree Strategy.
- continuing to maintain trees in streets and public open spaces and of selectively clearing and replanting trees;
- requiring landscape proposals in submissions for new development, which retain existing trees and other important landscape features where practicable and include new trees and other planting. Where trees are removed, appropriate replacement planting will normally be required. There will be a presumption against schemes that result in a significant loss of trees, unless replacements are proposed and there is good reason such as the health of the trees, public amenity, street scene or restoration of an historic garden. Landscaping schemes should take account of the Borough's Tree Strategy.

Policy DM OS 5

Biodiversity and new development

All new development will be expected to preserve and where possible enhance existing habitats including river corridors and biodiversity features, including trees.

All developments will be required to enhance existing and incorporate new biodiversity features and habitats into the design of buildings themselves as well as in appropriate design and landscaping schemes of new developments with the aim to attract wildlife and promote biodiversity, where possible.

When designing new habitats and biodiversity features, consideration should be given to the use of native species as well as the adaptability to the likely effects of climate change.

New habitats and biodiversity features should make a positive contribution to and should be integrated and linked to the wider green and blue infrastructure network, including de-culverting rivers, where possible.

6.3.9. To summarise, local policies of particular relevance to development near trees are LP 16, LP 16, DM DC 4 and DM OS 5. Policies LP 20 and LP 21 have less relevance to such developments.

Supplementary Planning Guidance (SPG) Documents

6.3.10. SPGs are additional material considerations when determining planning applications, and they provide guidance for developers and landowners. Documents of potential relevance are:

- **Trees: Landscape Design, Planting & Care.** This guide was published in 1999 and provides general advice on new planting. This is accessed here: https://www.richmond.gov.uk/media/7653/spgtree_ldpca.pdf
- **Trees: Legislation and Procedure.** This guide was also published in 1999 and provides guidance on legislation. However, it is now somewhat outdated and has little relevance to anyone wishing to develop near trees. It may be accessed here: https://www.richmond.gov.uk/media/7653/spgtree_ldpca.pdf
- **Planning information for Conservation Areas.** This guide was published in 1978, adopted in 2002 and reformatted with minor updates in 2018. It contains nothing of relevance concerning development near trees. It may be accessed here https://www.richmond.gov.uk/media/7644/conservation_areas_spd.pdf

6.3.11. The borough also has a tree policy outlined in a document entitled **London Borough of Richmond on Thames Tree Policy** which may be accessed here https://www.richmond.gov.uk/media/18699/tree_policy.pdf. This document is primarily concerned with trees owned by the Borough. The only sections potentially relevant to a developer are replicated below:

9. Utility Services and Cross overs

The Council will not remove or reposition trees to facilitate the implementation of non-essential underground or over-ground services and signs or the construction of drop kerbs or crossovers.

Where new essential services are proposed the Council's Arboriculturalists will provide advice during the design stage in order to minimise the impact upon trees.

12. Private trees and development

The Council will serve Tree Preservation Orders in accordance with the Department for Communities and Local Government Planning Practice Guidance (Tree Preservation Orders and trees in Conservation Areas).

Where tree loss occurs through development replacement trees will be sought either to be planted within the site or within the public realm through the Section 106 agreement and CIL process.

Regional Variations

6.3.12. The Borough also has several Village Planning Guidance documents which may be accessed here: https://www.richmond.gov.uk/supplementary_planning_documents_and_guidance

7. Arboricultural Impact Assessment

7.1. Overview

7.1.1. It is proposed to extend the existing dwelling, add two car parking spaces to the front, and rebuild the partially dilapidated front boundary wall as indicated on the drawings in Appendix 4. The existing layout is indicated in black, and the footprint of the proposed layout is indicated in red.

7.1.2. The table below summarises the potential impact on trees due to various activities.

Activity	Trees Potentially Affected
Tree Removal: Retention Category A	None
Tree Removal: Retention Category B	None
Tree Removal: Retention Category C	T2
Tree Removal: Retention Category U	None
Tree Pruning	T12
RPA: House Foundations	None
RPA: Wall Foundations	T1
RPA: AC Enclosure Foundations	T12 and T15
RPA: New Hard Surface	None
RPA: Replace Existing Hard Surface	T1
RPA: Underground Services	Unknown – To be confirmed
RPA: Change of Ground Levels	None
RPA: Soil Compaction	Trees adjacent the construction area (preventable by installing tree protection measures)

7.1.1. Other potentially damaging activities often associated with construction sites include demolition or the careless use of plant machinery, hazardous materials, or fires. All of the above potential impacts are considered in detail throughout this Section.

7.2. Tree Removal

7.2.1. To enable the development, it is proposed to remove one Retention Category C tree (T2). The tree to be removed is specified in the above table.

7.3. Tree Pruning

7.3.1. The table below specifies the proposed pruning works:

Tree No	Recommendation	Reason
T12	Crown lift to a height of 2m where the canopy overhangs the proposed AC enclosure.	To enable adequate clearance between the proposal and the tree canopy.

7.3.2. The proposed pruning shall not have a significant impact on tree health or local levels of visual amenity. Hence these works are not considered to be a material planning consideration.

7.3.3. All other tree canopies shall be unaffected by the proposals.

7.4. Mitigation Planting

7.4.1. The site offers opportunity to plant additional new trees as part of a post-development landscaping scheme.

7.5. Impact of Foundations

7.5.1. The table below assesses the impact of proposed surfacing in Root Protection Areas:

Tree No	Nature of Foundation	Portion of RPA	Proposed Mitigation
T1	Wall	<5%	<u>Hand-Dig Method</u> <ul style="list-style-type: none"> Excavation shall be undertaken using hand tools. A watching brief is proposed during excavation, and if any roots in excess of 25mm are encountered, an arch or shallow raft (or beam) shall be incorporated into the foundations, enabling them to be retained. Trial pits shall be excavated to determine the location of the piles. Excavation is to be supervised by the project arborist.
T12 & T15	AC Enclosure	<15%	<u>Above Ground Raft Foundation Method</u> <ul style="list-style-type: none"> RC Raft foundation to be entirely above ground (turf or loose topsoil may be removed to a maximum depth of 100mm so long as no roots over 25mm are encountered). Excavation is to be supervised by the project arborist. Raft installed. This may be supported by hand-driven helical piles. Trial pits to be excavated to a depth of 600mm to determine pile locations. All roots over 25mm diameter to be retained intact and pile relocated.

7.5.2. These measures accord with industry best-practice⁸ and shall ensure minimal impact on roots.

7.6. Impact of Surfacing

7.6.1. The table below assesses the impact of proposed surfacing in Root Protection Areas:

Tree No	Nature of Surfacing	Portion of RPA	Proposed Mitigation
T1	Hard surface replaced with new hard surface	Circa 20%	<ul style="list-style-type: none"> No excavation to occur below the existing surface and sub-base. Sub-base to be porous (MOT type 3). 3D Cellular system to retain the sub-base. Ground to be protected against compaction. Operation to be supervised by the project arborist. New surface to be porous.

7.6.2. These measures accord with industry best-practice⁹ and shall ensure minimal impact on roots.

7.7. Underground Services:

7.7.1. The location of any underground services is yet to be determined. Wherever possible, these should be located outside of Root Protection Areas. Otherwise, the project arborist must be consulted, and approval obtained from the local authority.

⁸ BS 5837 (2012 section 7.5 and 7.6)

⁹ BS 5837(2012 section 7.4) and Arboricultural Association Guidance Note 12: The Use of Cellular Confinement Systems near Trees

7.8. Changes in Ground Levels:

7.8.1. No changes to ground levels are proposed over Root Protection Areas.

Soil Compaction:

7.8.2. The majority of tree roots lie within the upper soil horizons. This is because the availability of oxygen decreases with depth, and roots need to breathe to stay alive. In addition, nutrients are more readily available in the form of organic matter close to the soil surface.

7.8.3. Healthy soils contain about 25% air space between solid particles. Increased loading of the soil caused by construction activity causes air to be squeezed out as the soil becomes compacted, preventing roots from breathing. Even an increase in pedestrian activity may cause some soil compaction.



7.8.4. It is important therefore that ground compaction and soil disturbance over Root Protection Areas should be avoided during the construction phase. Where access is required over Root Protection Areas, suitable ground protection measures must be installed.

7.9. Demolition Activities

7.9.1. No demolition is proposed close to trees.

7.10. Waste and Materials Storage

7.10.1. All hazardous materials (including cement and petrochemical products) will need to be controlled according to COSHH regulations in order to ensure there is no detrimental impact on tree health. Provision shall need to be made to ensure that cement spillage avoids all Root Protection Areas.

7.10.2. Areas designated for the storage of building materials and waste products will need to be approved by the local authority. Root Protection Areas should be avoided. Where this is not possible, suitable ground protection measures will need to be installed.

7.11. Cabins and Site Facilities

7.11.1. Any cabins and welfare facilities should be located outside of Root Protection Areas wherever possible. Otherwise, the project arborist should be consulted, and approval obtained from the local authority.

7.12. Boundary Treatments

7.12.1. No changes are proposed to the existing boundary features that might impact on trees.

7.13. Impact of Retained Trees on the Development

7.13.1. Adequate space has been allowed between retained trees and the proposal. Consequently, the proposal shall not result in increased pressure to remove or overly prune any of the retained trees.

7.13.2. The foundations and any new surfaces should be designed to accommodate all potential impacts due to future tree-rooting activity. These include potential vegetation-related subsidence, vegetation-related heave, and lifting of surfaces / light structures due to direct root pressure.

7.14. Arboricultural Method Statement

7.14.1. BS 5837 recommends that a detailed methodology is agreed in the form of an Arboricultural Method Statement, which shall ensure that trees are well protected during the construction phase. This should detail all tree protection measures and limitations on construction activity. All of the issues raised within this Impact Assessment should be covered by the Method Statement.

8. Photographs

Refer also to the Tree Constraints Plan for photo locations

Photo 1.



Photo 2.



Photo 3.



Photo 4.

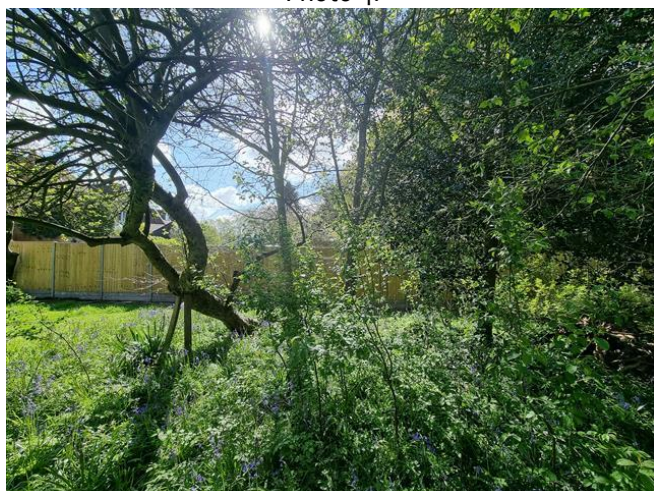


Photo 5.



Photo 6.



Photo 7.



Appendix 1: BS 5837: 2012 – Guidance Notes

This Standard prescribes the principles to be applied to achieve a satisfactory juxtaposition of trees and structures. It sets out to assist those concerned with trees in relation to design, demolition and construction to form balanced judgements.

It acknowledges the positive contribution trees may offer to a site, as well as the negative aspects of retaining inappropriate trees. It addresses the negative impacts that construction activity may have upon trees and offers mitigation strategies to minimise these impacts.

The Standard suggests a three stage approach to ensure best practice is followed when developing close to trees:

A1.1 Stage 1: Survey Details and Notes

A ground level visual survey was undertaken. No climbed inspections or specialist decay detection were undertaken. Only trees with a stem diameter over 75mm, which lie within the site boundary or relatively close to it, were included.

Where applicable, trees with significant defects have been highlighted and appropriate remedial works have been recommended. However, this report should not be seen as a substitute for a full *Safety Survey* or *Management Plan* which are specifically designed to minimise risk and liability associated with responsibility for trees.

Wherever practicable dimensions were obtained using diameter tapes, logger's tapes, distometers and clinometers. Where obstacles prevent accurate measurement, dimensions are estimated. Trees on privately owned third party are surveyed from the best available vantage point and observations relating to the condition of these trees should be treated accordingly. All height measurements should be regarded as approximate.

Data is recorded for each tree and is presented in a Tree Data Schedule. Each tree is allocated a **Retention Category** according to its size, amenity value, condition and safe useful life expectancy. The categories are allocated independently of development proposals. Our interpretation of the Retention Categories is explained below:

A1.1.1 Retention Categories

A Category: Trees of high quality and amenity value. Usually, mature trees with a significant life expectancy which would enhance any development. Retention of these trees is strongly encouraged.

B Category: Trees of moderate quality and amenity value. Usually these are maturing trees or younger trees with exceptional form. Retention of these trees is desirable though the removal of occasional specimens may be acceptable.

C Category: Trees of low quality or small specimens with a relatively low amenity value. These trees are not considered to be a material planning constraint and their removal will generally be seen as acceptable in order to facilitate development.

U Category: Trees of such low quality that their removal is recommended regardless of development proposals.

Occasionally trees are borderline and do not fall neatly into one of the categories A, B or C. In such cases we apply a superscript (+/-) such that:

C⁺ Indicates borderline C/B, though Category C is deemed to be most appropriate.

B⁻ Indicates borderline C/B, though Category B is deemed to be most appropriate.

The British Standard suggests that each of the A, B and C categories may be further subdivided (A1, A2, A3, B1, B2, B3 etc) such that subcategory 1 denotes mainly arboricultural values, subcategory 2 denotes mainly landscape values and subcategory 3 denotes mainly cultural values (including conservation). Multiple subcategories may be used.

Our experience suggests that these subdivisions lack clarity and can be confusing. Within this report subcategories are **not** denoted. Where appropriate, the use of phrases such as '*Part of a formal group*', or '*Has a high ecological value*', or '*Offers good screening to the site*' are incorporated into the observation section of the Tree Data Schedule. We believe this conveys all relevant landscape and cultural information without any confusion.

Tree Constraints Plan (TCP). This indicates the position, crown spread, Retention Category and Root Protection Area of each tree. It is used to inform where development may proceed without causing damage to trees.

Root Protection Area (RPA). This is the area around each tree likely to contain the majority of roots. It should ideally remain undisturbed to avoid a detrimental impact on tree health. For single stemmed trees It is calculated according to the formula “radius of RPA” = “12 x stem diameter”. Where a tree has more than one stem, the equivalent-single-stem diameter is usually recorded. This is calculated by adding the squares of the stems and then finding the square root of this total. The radius of the Root Protection Area is then calculated by multiplying the equivalent-stem-diameter by 12.

Shade Constraints. The previous Standard (BS 5837 2005) suggested that shade constraints should be indicated on the TCP. These are denoted as a circle-segment drawn northwest to due east with a radius equal to the height of the tree. These do not represent the actual shade pattern which varies through the seasons. Rather, they indicate the area most shaded by the tree throughout the course of the year. Ideally habitable room windows should be located outside of these shade constraints. Where we consider it appropriate, we will include shade constraints information on our Impact Assessment Plan or Proposed Layout Plan.

A1.2 Stage 2: Arboricultural Impact Assessment

After the initial survey and the production of the Tree Constraints Plan, arborists and designers are encouraged to work together to establish a design proposal with minimal impact on the high quality trees. An assessment should be made of all possible impacts including the impact that the trees may have upon the proposal. The arborist may recommend mitigation strategies to minimise these impacts and help achieve a more harmonious juxtaposition between buildings and trees.

A1.3 Stage 3: Arboricultural Method Statement

This type of report specifies the measures necessary to protect trees against damage from construction activity. The Method Statement should be written in a manner that it may be conditioned and enforced by the local authority upon granting of planning permission. The site manager should be familiar with all aspects of the Method Statement and should ensure that all persons working on the site are aware of those aspects which appertain to their work. This includes service installation engineers and operators of plant machinery.

Appendix 2: Survey Methodology

Ground level visual surveys are carried out using the *Visual Tree Assessment* technique described by Mattheck and Broeler (1994) and endorsed by the Arboricultural Association (LANTRA Professional Tree Inspection course, 2007).

Structural condition is assessed by inspecting the stem and scaffold branches from all angles looking for weak branch junctions or symptoms of decay. Particular attention is paid to the stem-base. Cavities are explored using a metal probe in order to assess the extent of any decay. If this is not possible further inspection is recommended in the form of a climbed inspection or using specialist decay detection equipment.

The physiological condition is assessed by inspecting the stem, branches and foliage for symptoms of disease. The overall vigour of the tree is also taken into account.

Where significant defects are observed, recommendations are made according to a scale of priority in order to reduce the likelihood of structural failure. The position of the tree and its potential targets are taken into account.

Measurements are obtained using a diameter tape, clinometer, distometer and loggers tape. Where this is not practical measurements are estimated.

Some trees are surveyed as groups, though this is usually avoided close to areas likely to be developed.

Finally, a *Retention Category* is allocated as described in Appendix 1.1.1.

Appendix 3: Explanation of Tree Data & Glossary

This section explains the terms used in the **Tree Data Schedule** (see Section 3 and Appendix 6).

A2.1 General Observations

Numbering System:	Each item of vegetation has its own unique number prefixed by a letter such that T1=Tree 1, G2=Group 2, H3=Hedge 3 and W4=Woodland 4, S5=Shrub 5.
Age Categories:	
Young	Usually less than 10 years old.
Semi-Mature	Significant future growth to be expected, both in height and crown spread (typically below 30% of life expectancy).
Early-Mature	Full height almost attained. Significant growth may be expected in terms of crown spread (typically 30-60% of life expectancy).
Mature	Full height attained. Crown spread will increase but growth increments will be slight (typically 60% or more of life expectancy).
Veteran	A level of maturity whereby significant management may be required in order to keep the tree in a safe condition.
Over Mature	As for veteran except management is not considered worthwhile.
Species:	Common names and Latin names are given.
Height:	Measured from ground level to the top of the crown.
Stem Diameter:	Taken at 1.5m above ground level where possible. On multi-stemmed trees this measurement may be taken at ground level, though usually an indication of the number of stems and average diameter is given, e.g. 3 x 30cm.
Crown Height:	Measured from ground level to the height at which the main crown begins. Where the crown is unbalanced it is measured on the side deemed to be most relevant. This is usually the side facing the area of anticipated development.
Tree Diagram:	This scaled drawing is computer generated based on measurements taken for stem diameter, crown height and spread, and overall height. It is designed to help the reader rapidly assess the data. It is not an accurate representation of the form of the tree.
Crown Spread:	Measured N, E, S & W, taken from the centre of the stem and usually rounded up to the nearest metre.
Observations:	If a tree's position is considered to be relevant it will be commented upon (e.g. overhanging a children's play area). Tree form and pruning history are also recorded along with an account of any significant defects. Defects and descriptive terms are dealt with in more detail at the end of this section.
Recommendations:	Usually based on any defects observed and intended to ensure that the tree is in an acceptable condition.
Priority Scale:	Depending upon the threat posed by the tree, and the likelihood of failure, recommendations should be carried out according to the following priority scale:
Urgent	To be carried out as soon as possible.
Very High	To be carried out within 1 month.
High	To be carried out within 3 months.
Moderate	To be carried out within 1 year.
Low	To be carried out within 3 years.
Inspection Frequency:	An interval of 6 months, 1 year, 1.5 years or 3 years is allocated before the next inspection is due. Wherever practical, consideration should be given to seasonal changes so that deciduous trees are not always surveyed in winter when they have no leaves, or in summer when leaves may obscure branches within the upper crown.
Vigour:	An indication of growth rate and the tree's ability to cope with stresses:
High	Having above average vigour.
Moderate	Having average vigour.
Low	Having below average vigour.
Very Low	Tree is struggling to survive and may be dying.
Physiological Condition:	
Good	Healthy and with no symptoms of significant disease.
Fair	Disease present or vigour is impaired.
Poor	Significant disease present or vigour is extremely low.
Very Poor	Tree is dying.
Structural Condition:	
Good	Having no significant structural defects.
Fair	Some defects observed though no high priority works are required.
Poor	Significant defects found. Tree requires monitoring or remedial works.
Very Poor	Major defects which will usually require significant remedial works or tree removal.
Amenity Value:	
Very High	Exceptional specimen, observable by a large number of people.
High	Attractive specimen, observable by a significant number of people.
Moderate	One of the above factors is not applicable.
Low	Unattractive specimen or largely hidden from view.
Life Expectancy:	The estimated number of years before the tree may require removal. Classified as (<10), (10 – 20), (20 – 40), or (40+).
Retention Category:	These are explained in detail in Appendix 1.

A2.2 Evaluation of Defects

Cavities, wounds, deadwood etc are all evaluated as follows:

Major	Such that structural integrity is, or will become, compromised and the tree is, or will inevitably become, hazardous.
Significant	A defect that may over time become a major defect, though not necessarily so. This will depend on the vigour of the tree and its ability to deal with decay etc.
Minor	A defect that is unlikely to develop into a major defect.

General Glossary

Aerobic	Conditions in which oxygen is freely available, or to biomechanical processes that depend on the presence of oxygen.
Anaerobic	A condition marked by the absence of oxygen; Generally such areas are unsuitable for normal life and growth of plant tissues. These sites tend to be populated by bacteria capable of surviving low oxygen conditions often associated with Slime Flux.
Arboriculture	The culture and management of trees as groups and individuals primarily for amenity and other non-forestry purposes.
Arborist	A person possessing the technical competence through experience and related training to provide management of trees or other woody plants in a landscape setting. Generally involved with the development or management of trees for visual amenity or land management rather than the growth of trees for product or profit.
Barrier zone	A layer within an annual increment of wood which contains abnormal xylem cells, laid down by the cambium in response to wounding or other trauma.
Bracket	A type of fruiting body produced by various fungal species, plate like to hoof like in shape and often a one sided attachment to the wood or bark.
Branch bark ridge	A ridged area located at the union of a branch to a trunk or stem.
Branch Collar	Trunk tissue that forms around the base of a branch between the main stem and the branch, or between a main branch and a lateral branch. As a branch decreases in vigour or begins to die, the collar usually becomes more pronounced and completely encircles the branch.
Brown Rot	Form of decay where cellulose is degraded, while lignin is only modified.
Buttress Root	Roots that emerge from the base of the tree stem, normally large and well developed that rapidly reduce in diameter to create the Root Plate this offers structural support for the tree. Buttress roots divide rapidly forming the connection between the stem and the transport roots.
Cabling Bracing	Installing cables within the crown of a tree to prevent collapse.
Cambium	A thin layer of actively growing and dividing cells, located between the xylem (sapwood) and bark of a plant; the part responsible for radial growth of a tree stem or branch.
Canopy	The topmost layer of twigs and foliage in a woodland, tree or group of trees.
Canker	A localised area of dead bark and cambium on a stem or branch, caused by fungal or bacterial organisms, characterised by woundwood development on the periphery. This may be annual or perennial.
Cavity	An open and exposed area of wood, where the bark is missing and internal wood has been decayed and dissolved.
Chlorotic	Also Chlorosis. A condition of the plant marked by yellowing of normally green foliage, often indicating nutrient deficiency or plant dysfunction.
Co-dominant stems/trunk	Are forked branches or trunks of nearly the same size in diameter and lacking a normal branch union.
Compacted soils	Soils in which the air-space (oxygen space) has been reduced or eliminated, reducing water infiltration and percolation, reducing root presence and inhibiting new root development.
Compartmentalisation	The physiological process that creates the chemical and mechanical boundaries that act to limit the spread of disease and decay organisms.
Compression Wood Conservation Area	Abnormal wood formed on the lower side of branches and curved stems, with physical properties different from normal wood. In Great Britain, designated areas of architectural or historical interest, in which there are special procedures for planning applications. Additionally tree works cannot generally be undertaken without prior notification (Currently 6 weeks) to the relevant local planning authority. See also Tree Preservation Orders.
Core Sample	A sample of wood extracted from a trunk or branch, using an increment borer tool. The resulting core can be analysed for characteristics of growth, wood strength, structure, decay, and for species identification.
Crotch	The union of two or more branches; the auxiliary zone between branches.
Crown	The upper canopy of a tree, including upper trunk, scaffold branches, secondary branches, stems and leaves.
Crown lifting / raising	Crown Lift The removal of the lowest branches, usually to a given height. It allows more residual light and greater clearance underneath for vehicles etc.
Crown reduction	The reduction of a tree's height or spread while preserving its natural shape.
Crown thinning	The removal of some of the density of a tree's crown, usually 5-25% allowing more light through its canopy and reducing wind resistance.
Deadwood (noun)	Deadwood is often present within the crown or on the stems of trees. It may be an indication of ill health, however, it may also indicate natural growth processes. If a target is present beneath the tree, deadwood may fall and cause injury or damage and should be removed, otherwise deadwood can remain intact for conservation purposes (insects, fungi, birds etc.).
Deadwood (verb)	The removal of dead branches from a tree's canopy, usually of a specified size (in diameter).
Decay	Progressive deterioration of organic tissues, usually caused by fungal or bacterial organisms, resulting in loss of cell structure, strength, and function. In wood, the loss of structural strength.
Decay Detection	The assessment of decay within a tree has been traditionally difficult, but recent advances have made it possible to achieve accurate representations of the internal section of a tree in both 2D and 3D, removing doubt over the condition of the tree and allowing accurate management decisions.
Defoliation	The losing of plants foliage.
Dieback	Progressive death of buds, twigs and branch tissues, on individual limbs resulting in Deadwood, or throughout the canopy, extreme cases can result in Stag Heading.
Epicormic shoots	Fast growing, weakly attached shoots/branches that often grow as a response to stress factors upon a tree or branch removal.
Failure	In connection with tree hazards, a partial or total fracture within the wood tissue or loss of cohesion between roots and soil. (In total failure affected parts will snap or tear away completely, Partial failure there is a crack or deformation, which results in an altered distribution of mechanical stress.
Feeder Roots	Fine fibrous Water and nutrient absorbing roots located in the outer root system.
Flush-Cut	In trees and shrubs, a pruning cut close to the parent stem, which removes the branch bark ridge.
Foliage	The live leaves or needles of the tree; the plant part primarily responsible for photosynthesis.
Formative pruning	The trimming of a tree to remove weaknesses and irregularities which may lead to problems. The formative pruning operation is aimed at reducing the potential for future weaknesses or problems within the tree's crown.
Girdling Root	In woody plants, a root that grows across the buttress, or across other roots, eventually causing constriction of the radial growth.
Growth Increment	The incremental growth added as new annual ring develops each season over existing wood. This is seen as (growth) rings in cross-sections of wood.
Hazard beam	An upwardly curved branch in which strong internal stresses may occur without the compensatory formation of extra wood (longitudinal splitting may occur in some cases).
Heartwood	Inner non functioning tissues that provide structural support to trunk.

Heave	In relation to shrinkable clay soils, expansion due to rewetting of a volume of soil previously subjected to the removal or water by plant / trees following felling or root severance. Also in relation to root growth, the lifting of pavements and other structures by radial expansion. Also in relation to tree stability, the lifting of one side of a wind rocked root plate.
Included Bark	Bark that becomes embedded in a crotch between branch and trunk or between co-dominant stems, usually found in narrow or tight crotches, and causes a weak structure.
Increment Borer	A tool that cuts and extracts a narrow cylinder of wood from a tree for analysis of the wood tissue and growth increments.
Limb	A large lateral branch growing from the main trunk or from another larger branch.
Lopping	In trees, a general term that related to the removal of branches from a tree.
Mycelium	A mass of growing filaments (hyphae) formed by fungi.
Mycorrhizae	The symbiotic relationship between roots and certain beneficial fungi. Mycorrhizae are the combined root / fungal growth.
Occluding tissue	The general term of wood, cambium and bark that develop around the site of a wound on a woody plant
Pathogen	A microorganism that causes diseases within another organism.
Phloem	The principle conductive tissue that the products of Photosynthesis are transported around the plant
Pollard	A term for a pollarded tree.
Pollard head	The swollen section of branch / stem that forms behind the pollarding cut.
Pollarding	The complete or partial removal of the crown of a young tree so as to encourage the development of numerous branches either for amenity or historically as fodder, repeated management is required cyclically to maintain the feature
Reaction Wood	Wood with distinctive anatomical characteristics, formed in parts of leaning or crooked stems and in branches to provide additional strength / support. In hardwoods, tension wood usually forms. In conifers, compression wood is usually found.
Reaction Zone	A zone normally darker than surrounding wood that denoted the boundary often a defensive one between functional sapwood and dysfunctional or decaying wood.
Remedial pruning	The removal of old stubs, deadwood, epicormic growth, rubbing or crossing branches and other unwanted items from the tree's crown.
Resistograph	Invasive decay detection technique whereby the resistance offered by the timber to a spinning probe is measured and plotted.
Root Barriers	Both Buildings and services can benefit from the installation of root barriers to protect a soil volume from the ingress of roots.
Root Collar	The basal area of the tree; transition zone from trunk to root. Also sometimes called trunk flare.
Root Plate	The primary support area for the tree; an area of the root system close to the base that structurally anchors the tree to the soil.
Root Zone	The area and volume of soil around the tree in which roots are expected. May extend to three or more times the branch spread of the tree, or several times the height of the tree.
Sail Area	That area or the tree subjected to wind load.
Sapwood	Xylem wood tissue, usually light in colour, representing the outer growth rings of the wood. Usually living, reactive wood tissue, in a healthy tree. See heartwood
Scaffold limbs / scaffold Branches	The branches that form the main network framework of the crown of a tree.
Soft Rot	A kind of wood decay, where a fungi degrades cellulose within the cell wall, without causing overall degradation.
Soil Compaction	The compression of soil, causing a reduction of pore space and an increase in the density of the soil. Air is squeezed out and nutrients become locked. Tree roots cannot grow in compacted soil.
Sonic Decay Detection	Non invasive method whereby sound waves are passed through the tree and the speed is measured. Slow speeds indicate decay and a tomography picture representing the inner stem is produced.
Stag Heading	In a tree, a state of dieback where dead branches protrude beyond the current living crown.
Stump Grinding	The removal of a tree stump using a specialist grinding machine.
Subsidence	In relation to vegetation, the removal of water by plant growth resulting in localised shrinkage in the soil volume.
Suppressed	Trees which are dominated by surrounding vegetation and whose crown development is restricted from above.
Target	Any person or object within reach of a falling tree or part of a tree that may be injured or damaged.
Target Pruning	The pruning of a branch where the wound affects only branch material, often result in a target shaped wound.
Tension Wood	Reaction wood typically formed on the upper side of limbs or curved stems; characterized by lack of cell wall lignifications (higher ratios of cellulose to lignin).
Tight Union / Tight Crotch	Also, narrow crotch. A crotch with a narrow angle between branches, often having included bark.
Tomography	The comparison of sound or stress waves through the tree allows the creation of a 2D or 3D representation of the internal structure of a stem or branch section and highlights areas of damage. Virtually non-injurious.
Topping	Cutting large limbs back severely, without regard to form or habit of the tree. Cuts are usually made between lateral branch nodes. This practice is extremely injurious to trees, and promotes decay and structural weakness within the crown.
Tree Preservation Order	In Great Britain, an order made by the local planning authority, where consent must be gained before undertaking all but exempt works to a tree.
Veteran Tree	Veteran trees are often found in large parks or estates and commonly affected by extensive decay or have been subject to extensive works. These trees are retained for historical importance and often pose greater risk than normal, which is generally justified. They need careful management and often propping or bracing to support them, some require fencing to limit access.
Vigour	Active, healthy growth of plants: ability to respond to stress factors.
Visual Tree Assessment (VTA)	An assessment of the mechanical condition of trees based upon their 'body language'. Trees are dynamic and respond to faults / decay / environmental factors in various ways, these responses can be indicative of structural integrity.
Wetwood	An infection caused by bacteria living inside the plant tissues. The bacteria ferment the plant fluids, resulting in death of nearby cells, and often causing exudations of fluid from the bark, often referred to as a Slime Flux.
White Rot	A kind of wood decay where a fungi attacks the lignin within the wood matrix
Witches Broom	A deformed or unusual growth of twigs from adventitious buds, caused by insects, disease, or dieback of twigs and buds.
Wood	Secondary Xylem; the main structural support and water conducting tissue of trees and shrubs.
Wound Wood	Wood with atypical features, formed in the vicinity of a wound and a term to describe the occluding tissues around a wound
Xylem	Plant tissues with special function of translocation of water and dissolved nutrients.

Appendix 4: Author's Qualifications

Qualifications & Experience of Joe Taylor - MArborA, FdSc (Arboriculture)

Joe began his career in Arboriculture as a tree surgeon/climber. During his time as a tree surgeon, Joe has achieved City & Guilds NPTC qualifications in Chainsaw Maintenance and Cross Cutting, Tree Climbing and Rescue, Safe Use of Manually Fed Wood-chipper and Supporting Colleagues Undertaking Tree Related Operations.

Joe obtained a Foundation Degree in Arboriculture at Askham Bryan College in 2015 which he passed with merit. Joe is a professional member of the Arboricultural Association, the International Society of Arboriculture and the Royal Forestry Society and regularly attends industry related seminars in order to keep abreast of industry best practice.

Studying at Askham Bryan College reinforced Joe's passion for trees and drove his enthusiasm to learn more. Learning how trees interact with their surrounding environment and their importance within our urban and rural landscapes highlighted an interest in pursuing a career in consultancy.

Since working for Crown Consultants Joe has undertaken numerous surveys and produced numerous reports for the purpose of planning (BS 5837), tree condition surveys, subsidence risk assessments, root surveys and decay detection investigations.

Appendix 5: Further Information

Building Near Trees – General

National Joint Utilities Group publication # 10 (1995), *Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees*. Downloadable at www.njug.demon.co.uk/pdf/NJUG%20Publication10.pdf

NHBC Standards Chapter 4.2., *Trees and Buildings*.

Horticulture LINK project 212. (University of Cambridge, 2004), *Controlling Water Use of Trees to Alleviate Subsidence Risk*.

Tree Planting and aftercare

See www.trees.org.uk/leaflets.php# for downloadable leaflets on selecting a garden tree, planting, aftercare and veteran tree management.

British Standards

BS 5837: 2012. Trees in Relation to Design, Demolition and Construction – Recommendations.

Bs 3998: 2010. Recommendations for Tree Work.

BS 3936: 1992. Nursery Stock. Part 1: Specification for Trees and Shrubs.

BS 3936: 1992. Nursery Stock. Part 10: Specification for Groundcover Plants.

BS 4043: 1989. Transplanting Root-balled Trees.

BS 8004: 1986. Foundations.

BS 8103: 1995. Structural design of Low-Rise Buildings.

BS 8206: 1992. Lighting for Buildings.

BS 8545:2014. Trees: From nursery to independence in the landscape – Recommendations

BS 3882: 2015. Topsoil.

BS 4428: 1989. General Landscaping Operations (excluding hard surfaces).

Permission to do Works to Protected Trees / Tree Law

Forestry Commission (Edinburgh, 2003), *Tree Felling – Getting Permission*. Country Services Division - Forestry Commission. Downloadable at [www.forestry.gov.uk/website/pdf.nsf/pdf/wgsfell.pdf/\\$FILE/wgsfell.pdf](http://www.forestry.gov.uk/website/pdf.nsf/pdf/wgsfell.pdf/$FILE/wgsfell.pdf)

Transport and the Regions (Department of the Environment, 2000), *Tree Preservation Orders, A Guide to the Law and Good Practice*. Downloadable at www.communities.gov.uk/publications/planningandbuilding/tposguide

C. Mynors, *The Law of Trees, Forests and Hedgerows* (Sweet and Maxwell, London, 2002)

Communities and Local Government website with numerous downloadable documents, from: <http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/>

Lighting Levels

P.J. Littlefair, *B.R.E. 209: Site layout planning for daylight and sunlight A guide to good practice*. B.R.E. Bookshop, London.

British Standards Institution. Code of practice for day lighting. *British Standard BS 8206: Part 2 (1992)*.

Chartered Institution of Building Services Engineers. *Applications manual: Window Design* (London, 1987).

NBA Tectonics. A study of passive solar housing estate layout. ETSU Report S-1126. Harwell, Energy Technology Support Unit (1988).

I.P. Duncan; D. Hawkes, *Passive solar design in non-domestic buildings. ETSU Report S-1110*. Harwell, Energy Technology.

P. J. Littlefair, *Measuring Daylight, BRE Information Paper 23/93 f3.50*. (Advises on measuring daylight under the real sky or an artificial sky, allowing for the changing nature of sky light).

High Hedges

Communities and Local Government website with numerous downloadable documents, from: <http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/>

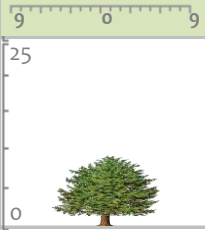
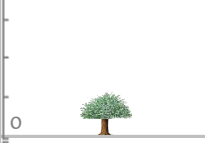





Tree Specific Websites

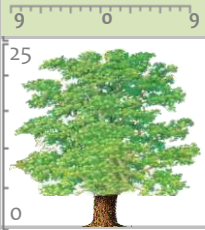
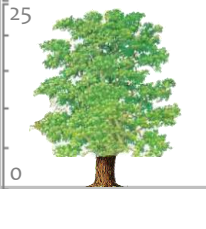
www.crowntrees.co.uk	Crown Consultants site containing useful information
www.trees.org.uk	Arboricultural Association
www.rfs.co.uk	Royal Forestry Society of England, Wales and N. Ireland
www.treehelp.info	The Tree Advice Trust
www.woodland-trust.org.uk	The Woodland Trust
www.treecouncil.org.uk	The Tree Council

Appendix 6: Tree Data Schedule and Drawings

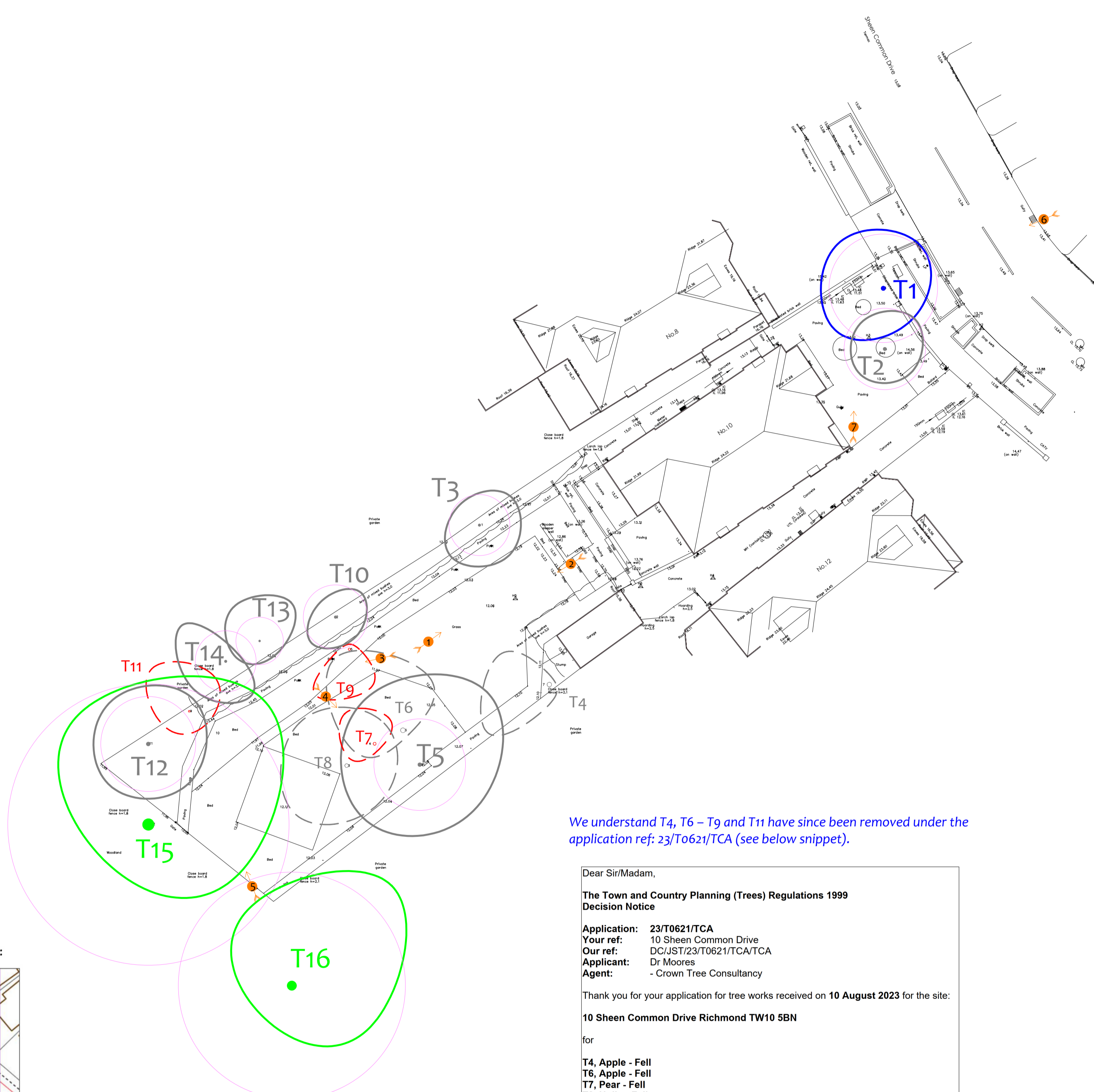
The Tree Data Schedule and any drawings accompanying this report follow this page. They are also provided as separate documents for ease of printing and screen viewing.

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m)			Scaled Tree Diagram (m)	Notes	Recommendations		Vigour		Amenity Value		
					W	N	E			Priority	Inspect Freq (yrs)	Physiological Condition	Structural Condition	Life Expectancy (yrs)	Retention Category	
					S											
T1	Early-Mature Silver Birch Betula pendula.	13	1.5	32	4.5		4		Position: Front garden. Form: Single stemmed and vertical with a weeping habit. History: No evidence of significant pruning. Defects: No significant defects. Other: Adjacent boundary wall previously removed.	No action required.	3	Moderate	Good	Moderate	40+	B
					n/a	Good										
T2	Semi-Mature Magnolia Magnolia sp.	5	1.5	24	2.5		3		Position: Front garden. Form: Twin-stemmed at 1m with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	3	Moderate	Good	Low	40+	C
					n/a	Good										
T3	Semi-Mature Holly Ilex aquifolium.	4.5	1	18		2	3		Position: Rear garden. Form: Single stemmed and vertical with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	3	Moderate	Good	Low	40+	C
					n/a	Good										
T4	Early-Mature Apple Malus sp.	5	2	32	5.5		4		Position: Rear garden. Form: Single stemmed and leaning with an unbalanced crown. Defects: Significant decay to old pruning wounds. Other: We understand this tree has since been removed under the application ref: 23/To621/TCA.	No action required.	3	Moderate	Fair	Low	10-20	C
					n/a	Poor										
T5	Semi-Mature Beech Fagus sylvatica.	14	0.5	27	5.5		7		Position: Rear garden. Form: Twin-stemmed at 4m with a balanced crown. History: No evidence of significant pruning. Defects: Multiple bark wounds to stem - acceptable condition at present.	No action required.	3	Moderate	Good	Low	40+	C +
					n/a	Good										
T6	Mature Apple Malus sp.	5	2	34	3.5		4		Position: Rear garden. Form: Twin-stemmed at 1m with an unbalanced crown & significant lean. History: Occasional pruning wounds due to crown lifting. Multiple pruning wounds due to crown reduction. Other: Tree stem propped on northern side. Recorded stem diameter is equivalent for two stems (21cm, 27cm). We understand this tree has since been removed under the application ref: 23/To621/TCA.	No action required.	3	Moderate	Good	Low	20-40	C
					n/a	Fair										
T7	Semi-Mature Pear Pyrus sp.	7.5	4.5	21	2		2		Position: Rear garden. Form: Multi-stemmed at 2m with a poorly formed crown. History: No evidence of significant pruning. Defects: Significant dead wood, poor vigour. Suppressed specimen. Other: We understand this tree has since been removed under the application ref: 23/To621/TCA.	Remove.	N/A	Low	Fair	Low	<10	U
					Low											

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m)			Scaled Tree Diagram (m)	Notes	Recommendations		Vigour		Amenity Value	
					W	N	E			Priority	Inspect Freq (yrs)	Physiological Condition	Structural Condition	Life Expectancy (yrs)	Retention Category
T8	Semi-Mature Holly Ilex aquifolium.	8.5	1	26	5	4.5	4	3.5		Position: Rear garden. Form: Multi-stemmed at 2m with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects. Other: We understand this tree has since been removed under the application ref: 23/T0621/TCA.	No action required.		Moderate	Low	
											n/a	3	Good	40+	C
T9	Young Apple Malus sp.	3.5	2	16	4	0.5	0.5	3		Position: Rear garden. Form: Twin-stemmed at 1m with an unbalanced crown. Significant lean. History: Occasional pruning wounds due to crown lifting with significant decay. Defects: Poor unions & dieback. Other: Suppressed specimen. Recorded stem diameter is equivalent for two stems (10cm, 12cm). We understand this tree has since been removed under the application ref: 23/T0621/TCA.	Remove.		Low	Low	
											Low	N/A	Poor	<10	U
T10	Semi-Mature Holly Ilex aquifolium.	4.5	1.5	19	2.5	1.5	2.5	2		Position: Rear garden. Form: Multi-stemmed at 3m with a compact crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.		Moderate	Low	
											n/a	3	Good	40+	C
T11	Semi-Mature Pear Pyrus sp.	10	6	12	2	4	3	1.5		Position: Rear garden. Form: Twin-stemmed at 3m with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Major decay to base. Other: We understand this tree has since been removed under the application ref: 23/T0621/TCA.	Remove.		Low	Low	
											Moderate	N/A	Fair	<10	U
T12	Semi-Mature Yew Taxus baccata.	5.5	1.5	28	4	4	4.5	4		Position: Rear garden. Form: Twin-stemmed at 1m with a balanced crown. History: No evidence of significant pruning. Defects: Included bark to primary fork. Other: Acceptable condition at present. Recorded stem diameter is equivalent for three stems (18cm, 15cm, 15cm).	No action required.		Moderate	Low	
											n/a	3	Good	40+	C
T13	Early-Mature Apple Malus sp.	6	2	14	2	3	3.5	1.5		Position: Situated on third party land. Form: Single stemmed and vertical with an unbalanced crown. History: No evidence of significant pruning. Defects: No significant defects observed.	No action required.		Moderate	Low	
											n/a	3	Good	40+	C
T14	Early-Mature Apple Malus sp.	6	2.5	18	3	4	1	3		Position: Situated on third party land. Form: Twin-stemmed at ground level with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Dieback to top of crown.	No action required.		Moderate	Low	
											n/a	3	Fair	20-40	C

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m)			Scaled Tree Diagram (m)	Notes	Recommendations		Vigour		Amenity Value	
					W	N	E			Priority	Inspect Freq (yrs)	Physiological Condition	Structural Condition	Life Expectancy (yrs)	Retention Category
					S										
T15	Mature Oak Quercus robur.	24	3.5	83	4	9	12		Position: Situated on third party land. Adjacent stream on woodland edge. Form: Twin-stemmed at 3m with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Significant dead wood to lower crown (low target occupancy).	No action required.		Moderate Good Good	High 40+ A-		
										n/a	3				
T16	Early-Mature Oak Quercus robur.	24	4	67	3	6	10		Position: Situated on third party land. Adjacent stream on woodland edge. Form: Single stemmed with a slight lean and an unbalanced crown. History: No evidence of significant pruning. Defects: No significant defects. Other: Limited inspection, dimensions estimated.	No action required.		Moderate Good Good	High 40+ A-		
										n/a	3				

Photographs



We understand T4, T6 – T9 and T11 have since been removed under the application ref: 23/T0621/TCA (see below snippet).

Dear Sir/Madam,
The Town and Country Planning (Trees) Regulations 1999 Decision Notice
Application: 23/T0621/TCA
Your ref: 10 Sheen Common Drive
Our ref: DC/IST/23/T0621/TCA/TCA
Applicant: Dr Moores
Agent: - Crown Tree Consultancy
 Thank you for your application for tree works received on **10 August 2023** for the site:
10 Sheen Common Drive Richmond TW10 5BN
 for
T4, Apple - Fell
T6, Apple - Fell
T7, Pear - Fell
T8, Holly - Fell
T9, Apple - Fell
T11, Pear - Fell
 Please also note that it is intended to replace these trees with an equal number of similar garden/orchard trees.
NO TREE PRESERVATION ORDER is to be made in this instance. The work may, therefore be undertaken subject to the condition(s) and informatives set out in the attached schedule but in any event a further notice to the Local Planning Authority will be required if the work specified is not completed within two years from the date of this permission.

Tree Data Schedule

Reference	C-Group	Age & Species	Height (m)	Crown W (m)	Crown E (m)	Crown S (m)	Scaled Tree Diagram (m)	Notes	Recommendations	Vigour	Anomaly Value	Life Expectancy (yrs)	Retention Category
T1	Early-Mature	Silver Birch	13	1.5	3.2	4.5	4	Position: Front garden. Form: Single stemmed and vertical with a weeping habit. History: No evidence of significant pruning. Defects: No significant defects. Other: Adjoining wall previously removed.	No action required.	Moderate	Good	40+	B
T2	Semi-Mature	Magnolia	5	1.5	2.4	2.5	3	Position: Front garden. Form: Twin-stemmed at 4m with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate	Good	40+	C
T3	Semi-Mature	Holly	4.5	1	1.8	3	3	Position: Rear garden. Form: Single stemmed and vertical with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate	Good	40+	C
T4	Early-Mature	Apple	5	2	3.1	1.4	4	Position: Rear garden. Form: Single stemmed and leaning with an unbalanced crown. History: Significant decay to old pruning wounds. Defects: We understand this tree has since been removed under the application ref: 23/T0621/TCA.	No action required.	Fair	Poor	10-20	C
T5	Semi-Mature	Beech	14	0.5	2.7	5.5	2	Position: Rear garden. Form: Twin-stemmed at 4m with a balanced crown. History: No evidence of significant pruning. Defects: Multiple bark wounds to stem - acceptable condition at present.	No action required.	Moderate	Good	40+	C+
T6	Mature	Apple	5	2	3.4	1.5	4	Position: Rear garden. Form: Twin-stemmed at 4m with an unbalanced crown & significant lean. History: Occasional pruning wounds due to crown lifting. Multiple pruning wounds due to crown reduction. Other: Tree stem propped on northern side. Recorded stem diameter is equivalent for two stems (10cm, 10cm). We understand this tree has since been removed under the application ref: 23/T0621/TCA.	No action required.	Moderate	Fair	20-40	C
T7	Semi-Mature	Pear	7.5	4.5	2.1	2	2	Position: Rear garden. Form: Multi-stemmed at 2m with a poorly formed crown. History: No evidence of significant pruning. Defects: Significant dead wood, poor vigour, suppressed specimen. Other: We understand this tree has since been removed under the application ref: 23/T0621/TCA.	Remove.	Low	Poor	<10	U
T8	Semi-Mature	Holly	8.5	1	1.6	3.5	4	Position: Rear garden. Form: Single stemmed and vertical with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects. Other: We understand this tree has since been removed under the application ref: 23/T0621/TCA.	No action required.	Moderate	Good	40+	C
T9	Young	Apple	3.5	2	1.6	0.5	0.5	Position: Rear garden. Form: Twin-stemmed at 4m with an unbalanced crown, significant lean. History: Occasional pruning wounds due to crown lifting with significant decay. Defects: Poor stem & dieback. Other: Suppressed specimen. Recorded stem diameter is equivalent for two stems (10cm, 10cm). We understand this tree has since been removed under the application ref: 23/T0621/TCA.	Remove.	Low	Poor	<10	U
T10	Semi-Mature	Holly	4.5	1.5	1.9	1.5	0.5	Position: Rear garden. Form: Multi-stemmed at 3m with a compact crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate	Good	40+	C
T11	Semi-Mature	Pear	10	6	1.2	4	3	Position: Rear garden. Form: Twin-stemmed at 3m with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Major decay to base. Other: We understand this tree has since been removed under the application ref: 23/T0621/TCA.	Remove.	Low	Fair	<10	U
T12	Semi-Mature	Yew	5.5	1.5	1.8	4	4	Position: Rear garden. Form: Twin-stemmed at 4m with a balanced crown. History: No evidence of significant pruning. Defects: Included bark to primary fork. Other: Acceptable condition at present. Recorded stem diameter is equivalent for three stems (18cm, 15cm, 15cm).	No action required.	Moderate	Good	40+	C
T13	Early-Mature	Apple	6	2	1.4	3	3.5	Position: Situated on third party land. Form: Single stemmed and vertical with an unbalanced crown. History: No evidence of significant pruning. Defects: No significant defects observed.	No action required.	Moderate	Good	40+	C
T14	Early-Mature	Apple	6	2.5	1.8	4	1	Position: Situated on third party land. Form: Twin-stemmed at ground level with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Dieback to top of crown.	No action required.	Moderate	Fair	20-40	C
T15	Mature	Oak	24	3.5	8.3	9	12	Position: Situated on third party land. Form: Twin-stemmed at 3m with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: Significant dead wood to lower crown (low target occupancy).	No action required.	Moderate	Good	40+	A-
T16	Early-Mature	Oak	24	4	6.7	6	10	Position: Situated on third party land. Form: Single stemmed and vertical with a slightly lean and an unbalanced crown. History: No evidence of significant pruning. Defects: No significant defects. Other: Limited inspection, dimensions estimated.	No action required.	Moderate	Good	40+	A-

TPOs and Conservation Area Status

On 24th April 2023, we accessed the local authority website. A screenshot is produced below:



This indicates that:

- The site is within the Sheen Common Drive Conservation area.
- There are no tree preservation orders affecting trees within the site.
- There are tree preservation orders affecting trees immediately adjacent to the site. T16 is believed to be affected (our numbering system).

Drawing No: CCL 11468 / TCP Rev 2
 Title: Tree Constraints Plan (Existing Layout)
 Site: 10 Sheen Common Drive TW10 5BN
 Scale: 1:2500 Paper Size: A1

Tree Retention Categories

- Category A tree
- Category B tree
- Category C tree
- Category U tree

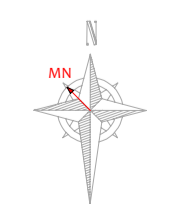
Trees of high quality with an estimated life expectancy of 40+ years. Usually large trees with significant presence or smaller trees with excellent form. Retention of these trees is highly desirable.

Trees of moderate quality with a life expectancy of 20+ years. Usually mature trees, or younger trees with good form. Retention of these trees is desirable though less than Category A trees.

Unremarkable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration.

Trees unsuitable for retention due to their very poor condition.

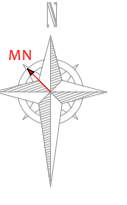
Tree Constraints Plan Status: Final



BS 5837 Root Protection Area (radius = 1xstem diameter)
 Root Protection Area needing amendment due to site conditions, e.g. presence of existing road or building.
 Root Protection Area having been amended to account for site conditions
 T1 = Tree No 1 C2 = Group No 2 H3 = Hedge No 3

MN = Measured North
 Canopy spreads are sometimes measured to an approximate N defined by site features. Often more accurate, especially where rows of trees are not aligned N/S or E/W.

Tree Ref.	Species	Height (m)	Root Protection Area	
			Radius (m)	Area (m ²)
T1	Silver Birch	13	3.8	46
T2	Magnolia	5	2.9	26
T3	Holly	4.5	2.2	15
T4	Apple	5	3.8	46
T5	Beech	14	3.2	33
T6	Apple	5	4.1	52
T7	Pear	7.5	2.5	20
T8	Holly	8.5	3.1	31
T9	Apple	3.54	1.9	12
T10	Holly	4.5	2.3	16
T11	Pear	10	1.4	7
T12	Yew	5.5	3.4	35
T13	Apple	6	1.7	9
T14	Apple	6	2.2	15
T15	Oak	24	10.0	312
T16	Oak	24	8.0	203



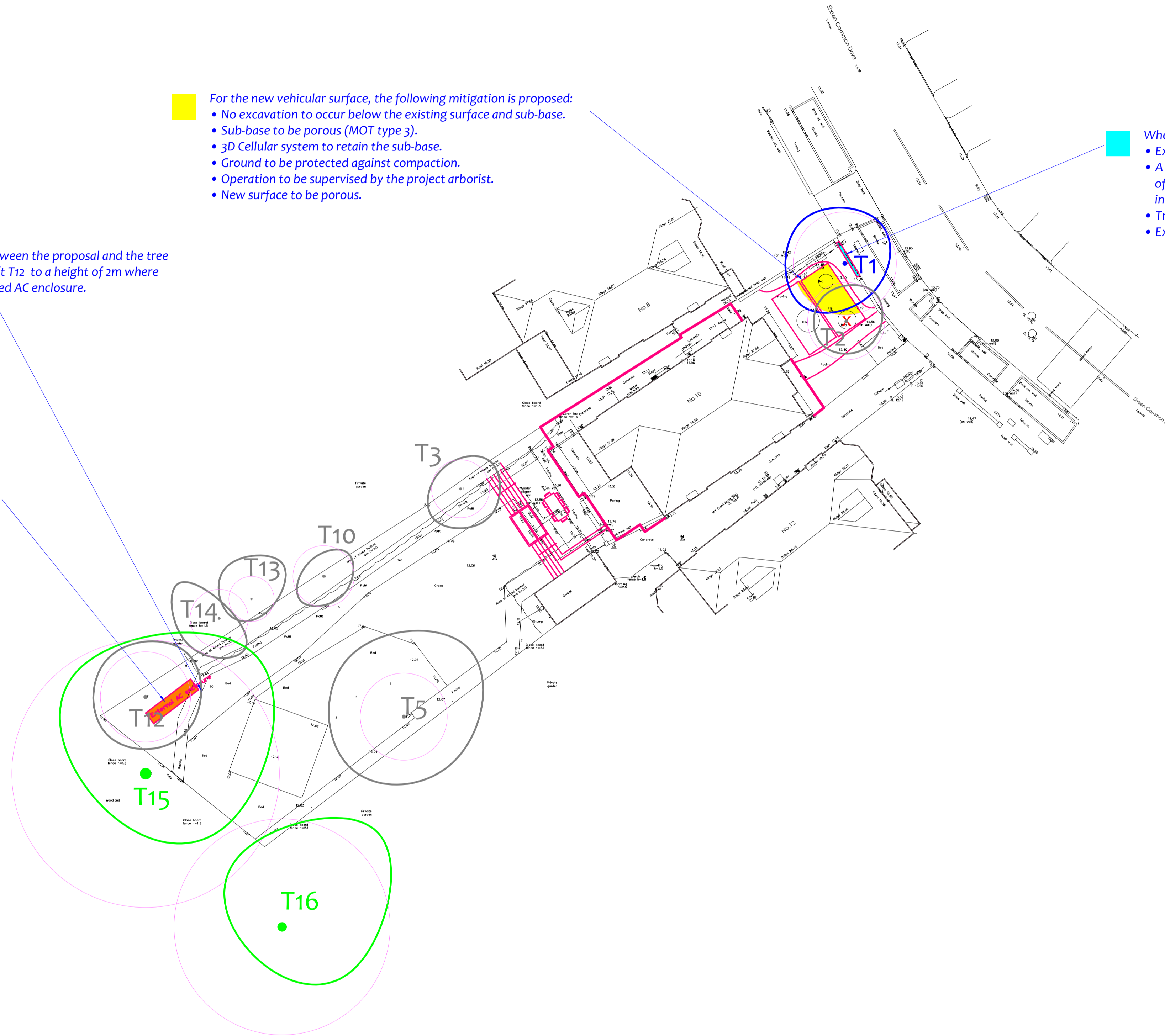
Proposed Layout (Red)

- For the new vehicular surface, the following mitigation is proposed:
 - No excavation to occur below the existing surface and sub-base.
 - Sub-base to be porous (MOT type 3).
 - 3D Cellular system to retain the sub-base.
 - Ground to be protected against compaction.
 - Operation to be supervised by the project arborist.
 - New surface to be porous.

- When building the wall adjacent to T1, the following mitigation is proposed:
 - Excavation shall be undertaken using hand tools.
 - A watching brief is proposed during excavation, and if any roots in excess of 25mm are encountered, an arch or shallow raft (or beam) shall be incorporated into the foundations, enabling them to be retained.
 - Trial pits shall be excavated to determine the location of the piles.
 - Excavation is to be supervised by the project arborist.

To enable adequate clearance between the proposal and the tree canopy, it is proposed to crown lift T12 to a height of 2m where the canopy overhangs the proposed AC enclosure.

- For the AC enclosure, the following mitigation is proposed:
 - RC Raft foundation to be entirely above ground (turf or loose topsoil may be removed to a maximum depth of 100mm so long as no roots over 25mm are encountered).
 - Excavation is to be supervised by the project arborist.
 - Raft installed. This may be supported by hand-driven helical piles.
 - Trial pits to be excavated to a depth of 600mm to determine pile locations.
 - All roots over 25mm diameter to be retained intact and pile relocated.



Drawing No: CCL 11468 / IAP Rev: 1
 Title: Impact Assessment Plan
 Site: 10 Sheen Common Drive TW9 5RN
 Scale: 1:3000 Paper Size: A1

Tree Retention Categories		Stems & canopies shown
	Category A tree	Trees of high quality with an estimated life expectancy of 40+ years. Usually large trees with significant presence or smaller trees with excellent form. Retention of these trees is highly desirable.
	Category B tree	Trees of moderate quality with a life expectancy of 20+ years. Usually maturing trees or younger trees with good form. Retention of these trees is desirable though less than Category A trees.
	Category C tree	Unremarkable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration.
	Category U tree	Trees unsuitable for retention due to their very poor condition.

Impact Assessment Plan

Status: Final - for submission

	B5 s537 Root Protection Area (radius = 1xstem diameter)
	Root Protection Area needing amendment due to site conditions, e.g. presence of existing road or building.
	Root Protection Area having been amended to account for site conditions
T1 = Tree No 1	G2 = Group No 2 H3 = Hedge No 3

Tree to be removed to facilitate the proposal
 Tree to be removed due to its low quality
 Proposed pruning

MN = Measured North:
 Canopy spreads are sometimes measured to an approximate N defined by site features. Often more accurate, especially where rows of trees are not aligned N-S or E-W.

Tree Ref.	Species	Height (m)	Root Protection Area		
			Radius (m)	Square (m)	
T1	Silver Birch	13	3.8	46	6.8
T2	Magnolia	5	2.9	26	5.1
T3	Holly	4.5	2.2	15	3.8
T4	Apple	5	3.8	46	6.8
T5	Beech	14	3.2	33	5.7
T6	Apple	5	4.1	52	7.2
T7	Pear	7.5	2.5	20	4.5
T8	Holly	8.5	3.1	31	5.5
T9	Apple	3.54	1.9	12	3.4
T10	Holly	4.5	2.3	16	4.0
T11	Pear	10	1.4	7	2.6
T12	Yew	5.5	3.4	35	6.0
T13	Apple	6	1.7	9	3.0
T14	Apple	6	2.2	15	3.8
T15	Oak	24	10.0	312	17.7
T16	Oak	24	8.0	203	14.3