

BS 5837 Arboricultural Report

& Impact Assessment



at
7 Parham Way
London
N10 2AT

Dated
3rd March 2023



CROWN
Tree Consultancy

Branching out through England and Wales

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1. Introduction

1.1. Instruction

1.1.1. We are instructed by Samantha Thompson to:

- Undertake a Tree Survey to BS 5837 at 7 Parham Way 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 the project architect 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 5th of January 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 Emma Hoyle FDS (Arboriculture), ED (Forestry & Arboriculture), M. Arbor. A. Details of the author's experience that qualify her to produce such a report are detailed in Appendix 4.

2. Site Overview

2.1. Brief Site Description

- 2.1.1. Number 7 Parham Way is a semi-detached residential property located on a private road. It has a garden area and driveway to the front of the property and garden to the side and rear.
- 2.1.2. The front garden (see Photograph 1) contains a Retention Category C Pear tree and a 2.5m tall laurel hedge.
- 2.1.3. Along the western boundary, between the front and rear gardens (see Photographs 3 & 4), are Retention Category C trees including Pear, Hornbeam and Ash. Surfaces consist of soil and paving.
- 2.1.4. The rear garden (see Photographs 5 & 6) contains a range of Retention Category C trees including Hornbeam, Ash and Birch. These trees are mostly located towards the rear of the garden. Surfaces consist of soil and grass with a small area of paving.
- 2.1.5. Adjacent to the western boundary, situated on third party land, is a Retention Category U tree, a Retention Category C tree and two Retention Category B trees. The Root Protection Areas of these trees are likely to extend into the site.
- 2.1.6. The site is approximately flat with no abrupt level changes. Boundary features consist of timber fencing.
- 2.1.7. 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°35'40.48"N 0° 8'12.05"W, and the altitude is approximately 75m above sea level¹.

2.3. Survey Extent

- 2.3.1. The area indicated below² shows the extent of the site. 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 in order to maintain the trees in an acceptable condition:
- 3.1.2. T1 has a significant bark wound on its stem and a broken hanging branch c. 4m above ground level. It is recommended that the broken branch is removed, and the condition of the tree is monitored.
- 3.1.3. The ash trees (T4 & T10) both have significant defects which require monitoring as part of future surveys. T4 is in particularly poor structural condition; however, it has previously been heavily pruned to negate this and is deemed to be in an acceptable condition at present.
- 3.1.4. 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	T1, T4 and T10
Low	Within 3 years	None

- 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	T10
1.5	T1 and T4
3	All other 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.

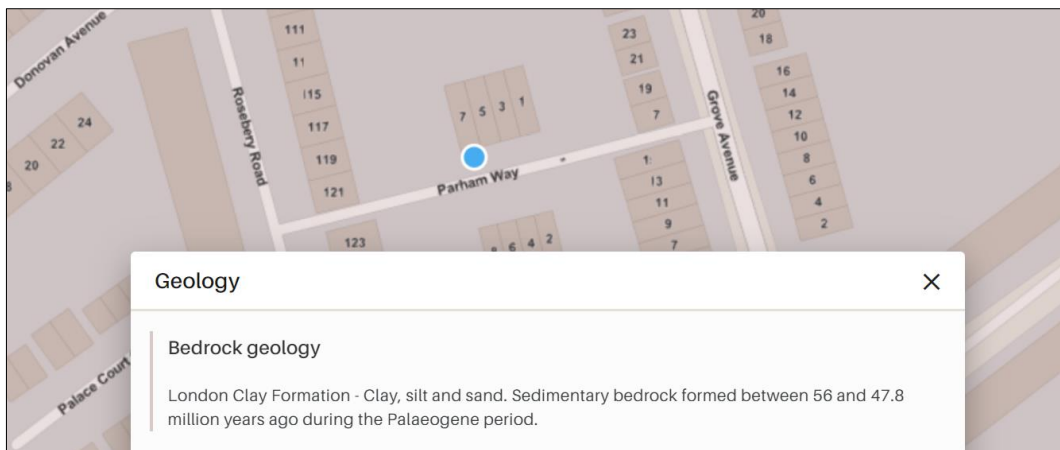
Species	Typical Height at Maturity (m)	Typical Canopy Spread at Maturity (m)	General Notes
Ash	25	18	Large deciduous tree with a straight bole and a high open domed crown. Native to Britain and commonly found in woodlands and adjacent roadsides. Not suitable for small gardens. Easily identified by its oppositely arranged pinnate leaves and black buds. Branches are relatively brittle resulting in a fairly high incidence of small branch failure in windy conditions. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Fraxinus+excelsior for more info.
Birch	18	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, even in relatively small gardens. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Betula+pendula for more info.
Callary Pear	15	15	A deciduous tree which grows at a fast rate. It has white blossom throughout spring and has pyramidal, rounded form. The fruits can be eaten raw or cooked but best used after it has been exposed to frost, since this will soften and sweeten the flesh. Visit https://pfaf.org/user/Plant.aspx?LatinName=Pyrus+calleryana for more info.
Hornbeam	25	14	Deciduous tree native to Southeast England and across Europe. Bark is smooth and grey on a stem which is often twisted and sinewy. Leaves sharply toothed and deeply veined. Tolerant of heavy clay soils. Formerly coppiced and prized for its durable timber which was used in wheel hubs, piano hammers, mill wheels and chopping blocks. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Carpinus+betulus for more info.
Leyland Cypress	40	8	Vigorous evergreen tree, a cultivated hybrid between Nootka Cypress and Monterey Cypress. Widely planted and widely hated. Excellent hedging species unless it is undermanaged in which case it forms a giant, dense wall of foliage. Very hardy. Tolerates most conditions. Size may be managed by regular trimming. Golden forms available. (The details of the specific cultivar surveyed are not listed here.) Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Cupressocyparis+leylandii 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.
Sycamore	25	16	Deciduous tree native to S. Europe, widely naturalised in the UK. Often regarded as a weed species due to its invasive nature and ability to tolerate most conditions. Responds well to pruning. Not a good tree to park beneath in summer due to the sticky sap secreted by aphids. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Acer+pseudoplatanus 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.

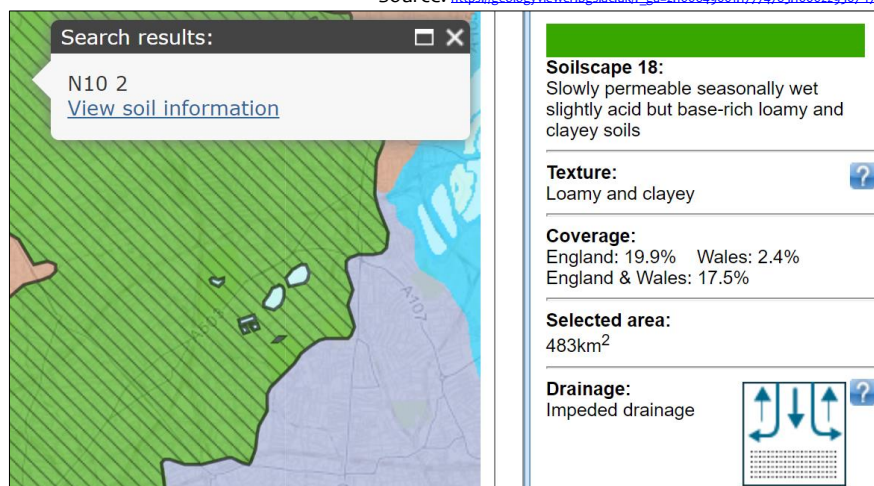
4. Local Geology and Soils

4.1. Desktop Research

4.1.1. Desktop research into local geology based on the postcode **N10 2AT** 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

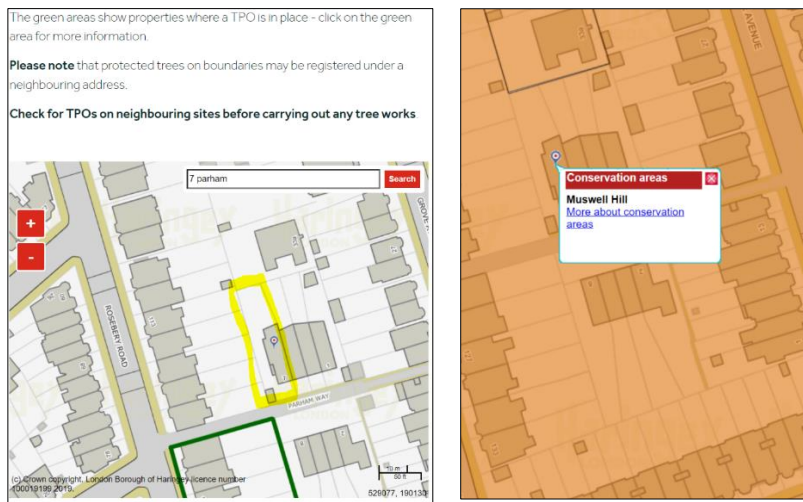
- 4.3.1. Based on the information reproduced in Section 4.1, local soils are assumed to have a loamy & clayey texture.
- 4.3.2. Loamy soils contain a mixture of clay and sand. Soil compaction may occur due to vehicular activity on building sites, so ground protection is recommended wherever vehicles operate. Most tree species will grow well in loamy soils.
- 4.3.3. Clay soils may be especially prone to compaction and slurring caused by general construction activity. Both of which significantly impair root function. This must be guarded against using boards to protect any soils where roots are growing. When planting new trees, species should be selected that can tolerate heavy soils.
- 4.3.4. Trees of most species are less likely to root deeply in clay soils. Any new surfacing over tree roots should avoid deep excavation and have good load-spreading properties.

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 10th of January 2023, we accessed the local authority website. Screenshots are produced below:



5.1.2. This indicates that:

- The site is within the **Muswell Hill Conservation Area**.
- There are no tree preservation orders affecting trees within the site.
- There are no tree preservation orders affecting trees immediately adjacent to the site.

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.

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:

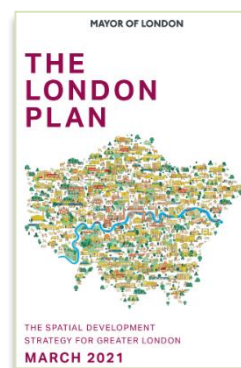
- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside 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

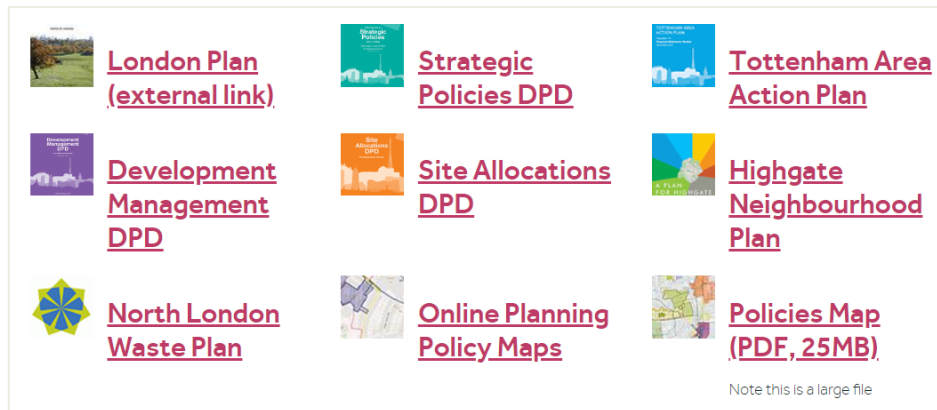
⁶ <https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/london-plan-2021>

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. The London Borough of Haringey's Local Policy

- 6.3.1. Haringey's Development Plan is currently made up of Development Management Policies, Strategic Policies, Site Allocations, the Tottenham Area Action Plan, and the London Plan, all of which may be viewed here:

<https://www.haringey.gov.uk/planning-and-building-control/planning/planning-policy/local-plan>



- 6.3.2. Haringey's Local Plan, adopted in 2017, is being renewed and is intended to cover the period up to 2036. The New Local Plan First Steps Engagement document may be downloaded using the link below, which sets out the key issues to be addressed by the New Local Plan:

<https://haringeynewlocalplan.commonplace.is/>



- 6.3.3. Details relating to the Muswell Hill Conservation Area, in which 7 Parham Way lies within, can be found on Pages 54 to 56 of the above document.
- 6.3.4. Whilst trees are loosely discussed throughout the available documentation, studies have commenced to prepare a 'Trees and Woodland Management Plan' in order to protect and enhance the natural environment.

7. Arboricultural Impact Assessment

7.1. Overview

7.1.1. It is proposed to install a single storey side extension and a smaller first floor extension above, as indicated on the drawings in Appendix 6. The existing layout is indicated in black, the proposed ground floor layout is indicated in pink and the proposed first floor layout is indicated in dashed blue.

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	T5, T6 and T7
Tree Removal: Retention Category U	None
Tree Pruning	G8
RPA: Extension Foundations	G8
RPA: New Hard Surface	None
RPA: Underground Services	None Anticipated
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. All trees to be removed are indicated on the Impact Assessment Plan and are listed below:

7.2.2. **Retention Category A:** Our survey did not identify any Retention Category A trees.

7.2.3. **Retention Category B:** It is proposed to retain all Retention Category B trees.

7.2.4. **Retention Category C:** It is proposed to remove T5, T6 and T7 to facilitate the proposed extension.

7.2.5. The trees are located along the side of the existing property, which is located on a private road. They have very limited visibility from public vantage points and are considered to have a low amenity value. Their removal shall not have a significant impact on the visual amenity of the locality; however, replacement tree planting is proposed once the development is complete.

7.2.6. **Retention Category U:** No Retention Category U trees are to be removed as part of this development.

7.2.7. None of the trees to be removed are protected by a tree preservation order or considered worthy of special protection. Details specific to each tree can be found in the Tree Data Schedule.

7.3. Mitigation Planting

7.3.1. To maintain levels of amenity, biodiversity and mitigate the loss of trees to facilitate the proposed development, it is proposed to plant new trees at the property, one of which is proposed in the front garden.

7.4. Impact on Tree Canopies

- 7.4.1. It is proposed to trim the overhanging foliage of G8. Such trimming shall increase clearance for construction activity. The canopies of G8 begin at circa 3m above ground level though, so only very light trimming will be required.
- 7.4.2. The proposed trimming of foliage 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.
- 7.4.3. All other tree canopies shall be unaffected by the proposals.

7.5. Impact on Tree Roots

Foundations:

- 7.5.1. The foundations for the new extension will encroach into the edge of the theoretical Root Protection Area of G8. However, only circa 7% of the Root Protection Area shall be affected (see the Impact Assessment Plan). Such an incursion is considered to be relatively small and within tolerable limits.
- 7.5.2. To minimise root severance, it is proposed to use hand tools only to a depth of 0.75m when excavating within the Root Protection Area of G8. This shall be done under the supervision of the project arborist. Deeper excavation may be undertaken using a small mechanical excavator so long as it operates from a suitable load-spreading surface, or from outside Root Protection Areas. Excavation for the foundations shall not extend more than 200mm beyond the build in the direction of the trees. Any roots growing close to the edge should be kept intact or neatly pruned by the project arborist.
- 7.5.3. These measures shall ensure that the impact of a small incursion will indeed be minimal.

New Surfaces:

- 7.5.4. No new surfaces are proposed within the Root Protection Areas of trees.

Underground Services:

- 7.5.5. We are not aware of any new underground services to be installed as part of the proposed development.

Changes in Ground Levels:

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

Soil Compaction:

- 7.5.7. 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.
- 7.5.8. 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.
- 7.5.9. It is important therefore that ground compaction and soil disturbance over Root Protection Areas should be avoided during the construction phase. This may be done by installing protective fencing and ground protection measures.



7.6. Demolition Activities

- 7.6.1. Adequate tree protection methods should be specified in an Arboricultural Method Statement, and approved by the local authority before demolition takes place. Areas should be designated for the storage of debris.

7.7. Waste and Materials Storage

- 7.7.1. 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.
- 7.7.2. 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.

7.8. Cabins and Site Facilities

- 7.8.1. Consideration should be given to the location of any site welfare facilities in terms of potential impact on trees. Where it is proposed to install cabins or site facilities in Root Protection Areas, the project arborist should be consulted and approval obtained from the local authority.
- 7.8.2. There is limited room for the siting of cabins and storage of materials / spoil during the construction phase so the logistics of the development shall need to be well organised to ensure that there is adequate space outside of the Tree Protection Zones for construction activity.

7.9. Boundary Treatments

- 7.9.1. No changes are proposed to the existing boundary features that might impact upon trees.

7.10. Impact of Retained Trees on the Development

- 7.10.1. There is considered to be adequate clearance between all retained trees and habitable rooms of the proposal. Consequently, the proposal shall not result in increased pressure to remove or overly prune any of the retained trees.
- 7.10.2. The closest trees to the proposal are located to the north so they shall not cast any shade in its direction.
- 7.10.3. 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.

7.11. Summary

- 7.11.1. Three low quality Retention Category C trees are to be removed to enable the extension. These are all relatively well hidden from public vantage points. Consequently, the impact of tree removal on local amenity levels shall be minimal.
- 7.11.2. New trees are proposed to mitigate tree removal and to ensure tree cover is maintained throughout the site.
- 7.11.3. One tree requires some light trimming to increase clearance from the proposal; such works will have very little impact on tree health or visual amenity.
- 7.11.4. Foundations are proposed within a portion of the Root Protection Area of G8. However, only circa 7% of the RPA shall be affected, so the impact shall be minimal, and shall be slightly off-set by the canopy pruning which shall maintain a balanced root-shoot ratio. The use of hand tools under arborist supervision is recommended when excavating the foundations to ensure impact shall be minimal.

7.12. Arboricultural Method Statement

- 7.12.1. 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.



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: Glossary of Tree Data

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.

Appendix 4: Author & Surveyor's Qualifications

Qualifications & Experience of Emma Hoyle FDS (Arboriculture), ED (Forestry & Arboriculture), M. Arbor. A.

Emma is a qualified Arboricultural Consultant educated to Level 5 in Arboriculture at Askham Bryan College, is a professional member of the Arboricultural Association and is a LANTRA accredited *Professional Tree Inspector*. She has worked for Crown Consultants since 2015 and has since written numerous reports relating to all aspects of arboriculture including; planning and development, vegetation related subsidence, tree preservation orders and tree risk assessment. Emma regularly attends seminars and events in order to keep abreast with current knowledge and best practise in Arboriculture.

Prior to becoming an arboricultural consultant, Emma worked for two reputable tree surgery firms from 2008 and became an NPTC Qualified tree surgeon after completing a Level 3 Extended Diploma in Forestry and Arboriculture at Askham Bryan College. Emma also has experience in other areas of arboriculture such as forest clearance, tree planting, tree maintenance and landscaping.

Qualifications & Experience of Sarah Alway - TechArborA, FdSc (Arboriculture).

Sarah recently obtained an FdSc in Arboriculture and Tree Management at the University of Central Lancashire which she passed with distinction. She is a member of the Arboricultural Association and regularly attends seminars and events to keep abreast developments in industry knowledge and current best practise in Arboriculture.

Sarah has been working closely alongside the principal consultant and managing director of Crown Consultants since the company was established in 2008. During that time, she has gained experience in all aspects of the business such as reporting, CAD, administration, accounting, and business management. Additionally, she has assisted consultants with numerous reports relating to all aspects of arboriculture including BS:5837 planning and development, vegetation related subsidence, tree preservation orders and tree risk assessment. She has also assisted with tree surveys for several years and since qualifying has been undertaking her own surveys.

In addition to working for Crown Tree Consultants Ltd producing reports, Sarah also likes to expand her knowledge of the wider Arboricultural industry by training in other areas of tree services and management. She has recently completed a training programme in tree-planting and volunteer management, including education in tree planting and natural dam building to help mitigate against the risks of heavy flooding (Natural Flood Management). Sarah also regularly volunteers with two local climate action groups who plant trees and build leaky dams.

As Sarah's career develops, she intends on focusing her attention on sustainable innovation in arboriculture and how green urban spaces could pave the way for the forests of the future.

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/wgfsfell.pdf/\\$FILE/wgfsfell.pdf](http://www.forestry.gov.uk/website/pdf.nsf/pdf/wgfsfell.pdf/$FILE/wgfsfell.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) N W E S	Scaled Tree Diagram (m)	Notes	Recommendations (Independent of any development proposals)		Vigour	Amenity Value
										Physiological Condition	Life Expectancy (yrs)
								Priority	Inspect Freq (yrs)	Structural Condition	Retention Category
T1	Sycamore Acer pseudoplatanus.	16	4	42	4 6 6		Position: Situated on third party land. Form: Single stemmed and vertical with a slightly unbalanced crown. History: Occasional pruning wounds due to crown lifting. Defects: Significant bark wound to stem from base to circa 2.2m above ground level. Broken hanging branch on east, circa 4m above ground level. Other: Limited inspection, dimensions estimated.	Remove branch and monitor.		Moderate Good Fair	Moderate 10-20 C
								Moderate	1.5		
T2	Young Sycamore Acer pseudoplatanus.	12	2.5	24	4 4 4		Position: Situated on third party land. Form: Multi-stemmed at ground level with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects. Other: Limited inspection, dimensions estimated. Recorded stem diameter is equivalent for three stems (12cm, 14cm, 15cm).	No action required.		Moderate Good Good	Low 40+ C
								n/a	3		
T3	Semi-Mature Callery Pear Pyrus calleryana.	7.5	2.5	13	1.5 1.5 1.5		Position: Front garden. Form: Single stemmed and vertical with a narrow, upright habit. History: No evidence of significant pruning. Defects: No significant defects.	No action required.		Moderate Good Good	Moderate 40+ C
								n/a	3		
T4	Mature Ash Fraxinus excelsior.	12	3	75	2 2 2		Position: Situated on third party land. Form: Twin-stemmed at 4m with a poorly formed crown. History: Previously heavily topped. Defects: Major decay to stem circa 0.8m below primary fork - acceptable condition at present due to heavy pruning. Other: Limited inspection, dimensions estimated.	Monitor.		Low Fair Poor	Moderate 10-20 U
								Moderate	1.5		
T5	Early-Mature Pear Pyrus sp.	10	3	47	3.5 4 1		Form: Triple-stemmed at 1.5m with an unbalanced crown. History: Multiple pruning wounds due to crown lifting & crown reduction. Defects: Several minor cavities to stem and damaged branches - acceptable condition at present.	No action required.		Moderate Good Good	Low 40+ C
								n/a	3		
T6	Semi-Mature Hornbeam Carpinus betulus.	10	2.5	15	2.5 4.5 3		Form: Single stemmed and vertical with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.		Moderate Good Good	Low 40+ C
								n/a	3		
T7	Semi-Mature Ash Fraxinus excelsior.	14	3.5	39	2 6 5		Form: Twin-stemmed at 0.5m with a poorly formed crown. History: Multiple pruning wounds due to crown lifting. previously topped at 10m above ground level. Defects: Minor dead wood to lower canopy. Other: Base of stem growing against timber fence. Recorded stem diameter is equivalent for two stems (26cm, 29cm).	No action required.		Moderate Fair Fair	Low 20-40 C
								n/a	3		

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N W E S	Scaled Tree Diagram (m) 909	Notes	Recommendations (Independent of any development proposals)		Vigour	Amenity Value
								Priority	Inspect Freq (yrs)	Physiological Condition	Life Expectancy (yrs)
										Structural Condition	Retention Category
G8	Early-Mature Leyland Cypress X Cupressocyparis leylandii.	av 15	av 3	av 45	av 4 4 4 each	250 	Position: Situated on third party land. Form: Two close growing specimens, both multi-stemmed. History: No evidence of significant pruning. Defects: No significant defects. Other: Limited inspection, dimensions estimated.	No action required.		High Good Good	Low 40+ B
	n/a		3								
T9	Semi-Mature Hornbeam Carpinus betulus.	6.5	3	12	1.5 1.5 1.5	250 	Form: Single stemmed and vertical with a narrow, upright habit. History: No evidence of significant pruning. Defects: No significant defects.	No action required.		Moderate Good Good	Low 40+ C
	n/a		3								
T10	Early-Mature Ash Fraxinus excelsior.	16	5	58	7 4.5 6	250 	Form: Twin-stemmed at 0.5m with a slightly unbalanced crown. History: Multiple pruning wounds due to crown reduction. Defects: Significant patch of dead bark at base on east & north side. Other: Growing against timber fence. Recorded stem diameter is equivalent for two stems (37cm, 45cm).	Monitor.		Low Fair Fair	Moderate 10-20 C
	Moderate		1								
T11	Semi-Mature Leyland Cypress X Cupressocyparis leylandii.	6.5	3	10	2 0.5 1	250 	Position: Situated on third party land. Form: Twin-stemmed at 1m with an unbalanced crown. History: Pruned to boundary. Defects: No significant defects observed. Other: Limited inspection, dimensions estimated.	No action required.		Moderate Good Good	Moderate 40+ C
	n/a		3								
G12	Semi-Mature Hornbeam Carpinus betulus.	av 10	av 2.5	av 20	av 2 2 2 each	250 	Form: Two similar specimens, both multi-stemmed. History: No evidence of significant pruning. Defects: No significant defects. Other: Eastern-most specimen growing through decking.	No action required.		Moderate Good Good	Low 40+ C
	n/a		3								
T13	Semi-Mature Hornbeam Carpinus betulus.	10	2.5	20	2 2 4	250 	Position: Situated on third party land. Form: Multi-stemmed at 2m with a narrow, upright habit. History: No evidence of significant pruning. Defects: No significant defects. Other: Limited inspection, dimensions estimated.	No action required.		Moderate Good Good	Low 40+ C
	n/a		3								
G14	Young Birch Betula sp.	av 7.5	av 2	av 10	av 2 2 2 each	250 	Form: Three similar specimens growing in raised planters. History: No evidence of significant pruning. Defects: No significant defects.	No action required.		Moderate Good Good	Low 40+ C
	n/a		3								

Tree Data Schedule

Reference to a tree in the schedule	Age & Species	Height (m)	Crown Spread (m)			Scaled Tree Diagram (m)	Notes	Recommendations (Independent of any development proposals)		Vigour Physiological Condition	Amenity Value Life Expectancy (yr) Relative Category
			Diameter (cm)	N	E			Priority	Impact Fragility		
T1	Semi-Mature Sycamore <i>Acer pseudoplatanus</i>	16	4	41	3	6	Position: Sited on third party land. Form: Single stemmed and vertical with a slightly unbalanced crown. History: Occasional pruning wounds due to crown lifting. Defects: Significant bark wound to stem from base to circa 3.1m above ground level. Broken hanging branch on east, circa 4m above ground level. Other: Limited inspection, dimensions estimated.	Remove branch and monitor.	Moderate	Good	Moderate
T2	Young Sycamore <i>Acer pseudoplatanus</i>	12	2.5	24	4	4	Position: Sited on third party land. Form: Multi-stemmed at ground level with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects. Other: Limited inspection, dimensions estimated. Recorded stem diameter is equivalent for three stems (12cm, 14cm, 15cm).	No action required.	Moderate	Good	Low
T3	Semi-Mature Gallery Pear <i>Pyrus calleryana</i>	7.5	2.5	13	1.5	1.5	Position: Front garden. Form: Single stemmed and vertical with a narrow, upright habit. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate	Good	Moderate
T4	Mature Ash <i>Fraxinus excelsior</i>	12	3	75	2	2	Position: Sited on third party land. Form: Twist-stemmed at 4m with a poorly formed crown. History: Previously heavily topped. Defects: Major decay to stem circa 0.5m below primary fork - acceptable condition at present due to heavy pruning. Other: Limited inspection, dimensions estimated.	Monitor.	Low	Fair	Moderate
T5	Early-Mature Pear <i>Pyrus</i> sp.	10	3	47	5.5	4	Form: Triple-stemmed at 1.0m with an unbalanced crown. History: Multiple pruning wounds due to crown lifting & crown reduction. Defects: Several minor cavities to stem and damaged branches - acceptable condition at present.	No action required.	Moderate	Good	Low
T6	Semi-Mature Hornbeam <i>Carpinus betulus</i>	10	2.5	15	1.5	1.5	Form: Single stemmed and vertical with a slightly unbalanced crown. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate	Good	Low
T7	Semi-Mature Ash <i>Fraxinus excelsior</i>	14	3.5	39	3	6	Form: Twist-stemmed at 0.5m with a poorly formed crown. History: Multiple pruning wounds due to crown lifting; previously topped at 10m above ground level. Defects: Minor dead wood to lower canopy. Other: Base of stem growing against timber fence. Recorded stem diameter is equivalent for two stems (10cm, 12cm).	No action required.	Moderate	Fair	Low
G8	Early-Mature Leyland Cypress <i>X Cupressocyparis leylandii</i>	av 15	av 3	av 45	av 4	4	Position: Sited on third party land. Form: Two close growing specimens, both multi-stemmed. History: No evidence of significant pruning. Defects: No significant defects. Other: Limited inspection, dimensions estimated.	No action required.	High	Good	Low
T9	Semi-Mature Hornbeam <i>Carpinus betulus</i>	6.5	3	12	1.5	1.5	Form: Single stemmed and vertical with a narrow, upright habit. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate	Good	Low
T10	Early-Mature Ash <i>Fraxinus excelsior</i>	16	5	58	5	7	Form: Twist-stemmed at 0.5m with a slightly unbalanced crown. History: Multiple pruning wounds due to crown reduction. Defects: Significant patch of dead bark at base on east & north side. Other: Growing against timber fence. Recorded stem diameter is equivalent for two stems (10cm, 15cm).	Monitor.	Low	Fair	Moderate
T11	Semi-Mature Leyland Cypress <i>X Cupressocyparis leylandii</i>	6.5	3	10	1.5	1.5	Position: Sited on third party land. Form: Twist-stemmed at 1m with an unbalanced crown. History: Pruned to boundary. Defects: No significant defects observed. Other: Limited inspection, dimensions estimated.	No action required.	Moderate	Good	Moderate
G12	Semi-Mature Hornbeam <i>Carpinus betulus</i>	av 10	av 3	av 50	av 2	2	Form: Two similar specimens, both multi-stemmed. History: No evidence of significant pruning. Defects: No significant defects. Other: Eastern most specimen growing through decking.	No action required.	Moderate	Good	Low
T13	Semi-Mature Hornbeam <i>Carpinus betulus</i>	10	2.5	20	2	2	Position: Sited on third party land. Form: Multi-stemmed at 2m with a narrow, upright habit. History: No evidence of significant pruning. Defects: No significant defects. Other: Limited inspection, dimensions estimated.	No action required.	Moderate	Good	Low
G14	Young Birch <i>Betula</i> sp.	av 7.5	av 2	av 10	av 2	2	Form: Three similar specimens growing in raised planters. History: No evidence of significant pruning. Defects: No significant defects.	No action required.	Moderate	Good	Low

Shrubs to 4m height

Fatsia japonica
Spr: 3m

Bamboo
Ht: 4.5m

Laurel hedge
Ht: 2.5m

RPA's of T5 and T7 amended to account for the influence of the adjacent building foundations, and canopy reduction of T5.

RPA's of T1 and T2 amended to account for the influence of the adjacent road on their likely rooting pattern.

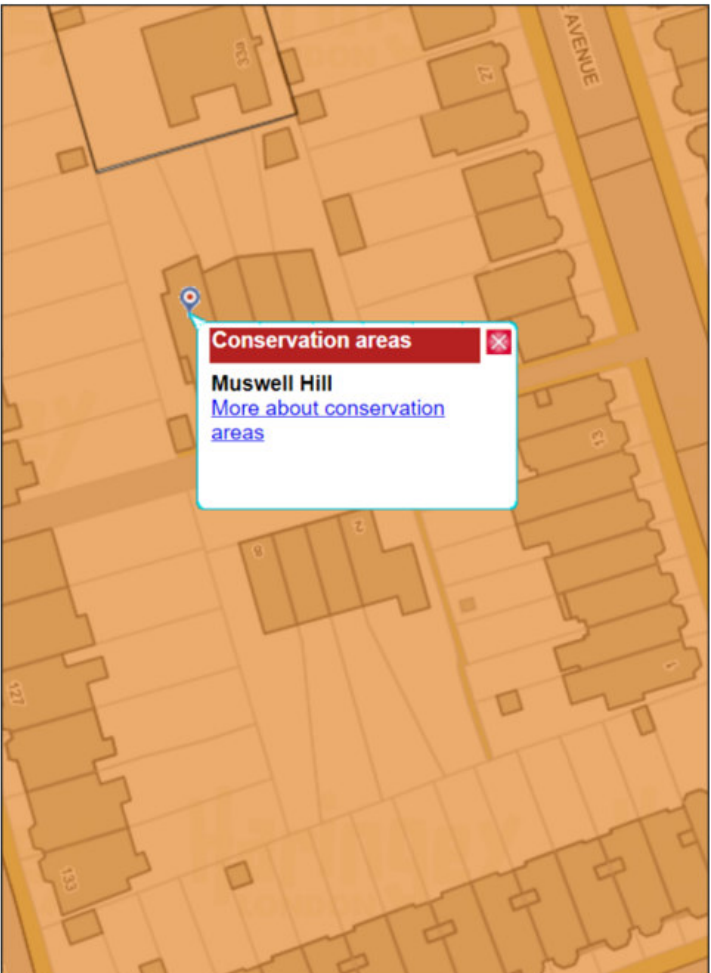
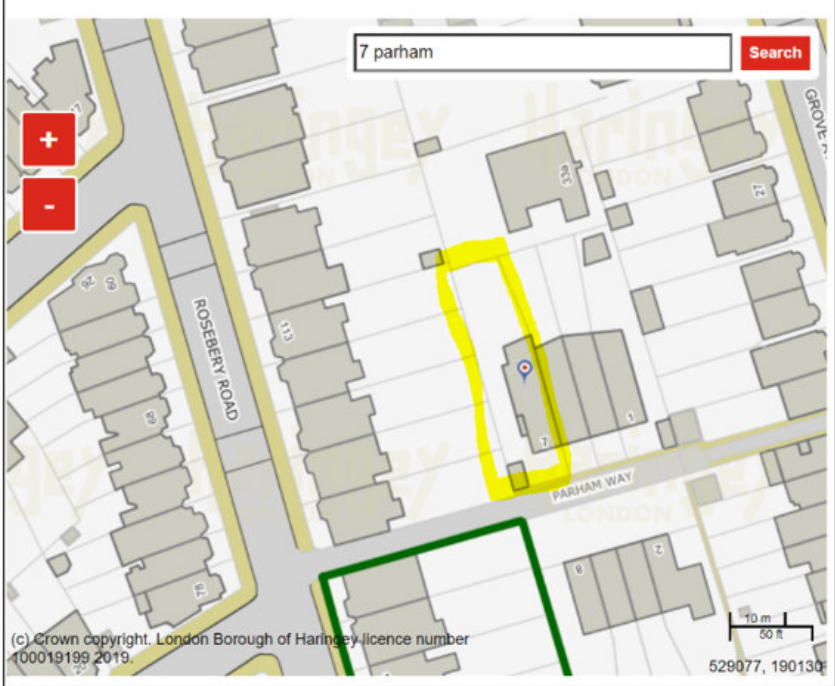
Satutory Protection

On the 10th of January 2023, we accessed the local authority website. Screenshots are produced below:

The green areas show properties where a TPO is in place - click on the green area for more information.

Please note that protected trees on boundaries may be registered under a neighbouring address.

Check for TPOs on neighbouring sites before carrying out any tree works



This indicates that:

- The site is within the Muswell Hill Conservation Area.
- There are no tree preservation orders affecting trees within the site.
- There are tree preservation orders within the properties to the southwest of the site. Trees affected were not part of our survey.

Tree Constraints Plan

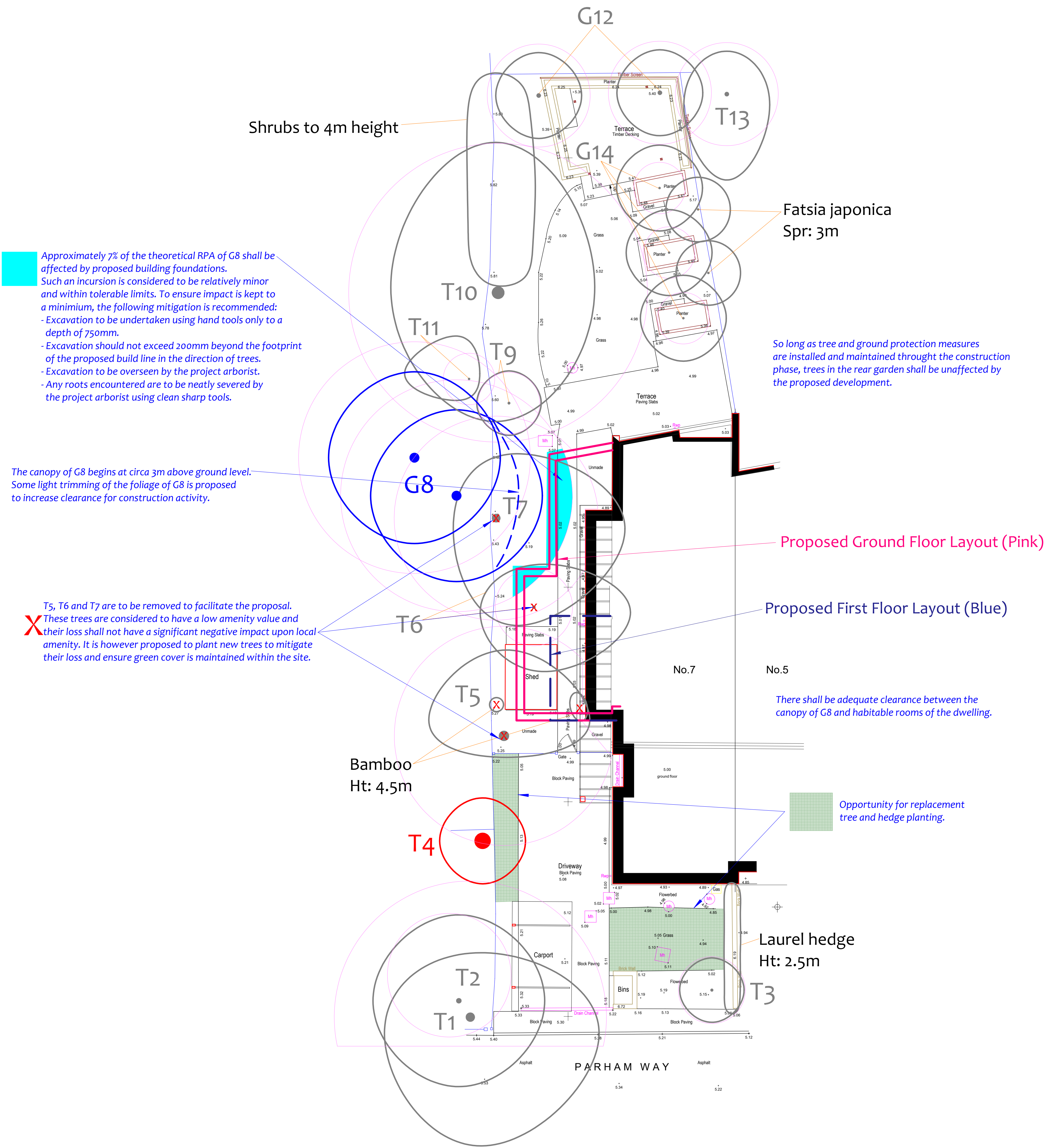
Existing Layout

BS 5837 Root Protection Area (radius = 12xstem 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

Photo 1

T1 = Tree No 1 G2 = Group No 2 H3 = Hedge No 3

Tree Ref.	Species	Height (m)	Root Protection Area		
			Radius (m)	m ²	Square (m)
T1	Sycamore	16	5.0	80	8.9
T2	Sycamore	12	2.9	26	5.1
T3	Gallery Pear	7.5	1.6	9	2.8
T4	Ash	12	9.0	254	16.0
T5	Pear	10	5.6	100	10.0
T6	Hornbeam	10	1.8	10	3.2
T7	Ash	14	4.7	69	8.3
G8	Leyland Cypress	15	5.4	92	9.6
T9	Hornbeam	6.5	1.4	7	2.6
T10	Ash	16	7.0	152	12.3
T11	Leyland Cypress	6.5	1.2	5	2.1
G12	Hornbeam	10	2.4	18	4.3
T13	Hornbeam	10	2.4	18	4.3
G14	Birch	7.5	1.2	5	2.1



Drawing No:	CCL 11371 / IAP Rev: 2
Title:	Impact Assessment Plan (Existing Layout with Proposals Overlaid)
Site:	7 Parham Way, London N10 2AT
Scale:	0 1:100 5
Paper Size:	A1



Tree Retention Categories	
Stems & canopies shown	
	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 maturing 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.

Impact Assessment Plan

Existing Layout with Proposals Overlaid

	BS 5837 Root Protection Area (radius = 12xstem 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 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

Tree Ref.	Species	Height (m)	Root Protection Area		
			Radius (m)	m²	Square (m)
T1	Sycamore	16	5.0	80	8.9
T2	Sycamore	12	2.9	26	5.1
T3	Calvery Pear	7.5	1.6	9	2.8
T4	Ash	12	9.0	254	16.0
T5	Pear	10	5.6	100	10.0
T6	Hornbeam	10	1.8	10	3.2
T7	Ash	14	4.7	69	8.3
G8	Leyland Cypress	15	5.4	92	9.6
T9	Hornbeam	6.5	1.4	7	2.6
T10	Ash	16	7.0	152	12.3
T11	Leyland Cypress	6.5	1.2	5	2.1
G12	Hornbeam	10	2.4	18	4.3
T13	Hornbeam	10	2.4	18	4.3
G14	Birch	7.5	1.2	5	2.1