# BS 5837
# Arboricultural Report

CROWN Tree Consultancy

Branching out through England and Wales

## & Impact Assessment

at

Flat 1-2
36 Elsworthy Road
London
NW3 3DL

Dated

10th February 2025

# Contents

**1. Introduction** 3
1.1. Instruction 3
1.2. Purpose of this Report 3
1.3. References 3
1.4. Author 3
**2. The Survey** 4
2.2. Methodology 4
2.3. Survey Extent 5
2.4. Summary of Observations 5
**3. Vegetation Overview (independent of proposals)** 6
3.1. Preliminary Management Recommendations 6
3.2. Future Inspections 6
3.3. Statutory Protection 6
3.4. Species Present – Additional Information 6
**4. Local Geology and Soils** 7
4.1. Desktop Research 7
4.2. Site Investigations 7
4.3. Conclusion and Relevance 7
**5. Arboricultural Impact Assessment** 8
5.1. Overview 8
5.2. Tree Removal 8
5.3. Tree Pruning 8
5.4. Impact of Foundations 9
5.5. Impact of Surfacing 9
5.6. Underground Services 9
5.7. Changes in Ground Levels 9
5.8. Soil Compaction 9
5.9. Demolition Activities 10
5.10. Waste and Materials Storage 10
5.11. Cabins and Site Facilities 10
5.12. Boundary Treatments 10
5.13. Impact of Retained Trees on the Development 10
5.14. Arboricultural Method Statement 10
**6. Photographs** 11

**Appendix 1: BS 5837: 2012 – Interpretation Guide** 12
**Appendix 2: Glossary** 13
**Appendix 3: Author's / Arborist's Qualifications** 14
**Appendix 4: Tree Data Schedule and Drawings** 16

# 1. Introduction

## 1.1. Instruction

1.1.1. We are instructed by Daniel Winston of Clifton Interiors to:

- Undertake a Tree Survey to BS 5837 at Flat 1-2 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 preliminary management recommendations for the tree stock (independent of development proposals).
- 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.
- Produce a Tree Protection Plan showing locations of tree protection barriers and where ground protection will be required.

## 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. Author

1.4.1. This report was compiled by Sarah Alway- FdSc (Arboriculture), M. Arbor A. Sarah's resumé can be found in Appendix 3.

# 2. The Survey

2.1.1. A visual ground-level assessment of all trees was undertaken on the 28th of January 2025 by Carl Lothian. No climbed inspections or specialist decay detection were undertaken.

## 2.2. Methodology

2.2.1. Structural condition was assessed by inspecting the stem and scaffold branches, looking for weak branch junctions, symptoms of decay, or other structural defects. Any recommended works were made to ensure the trees are in acceptable structural condition. The position of the tree and its potential targets were considered.

2.2.2. Physiological condition was assessed by inspecting the stem, branches, and foliage for symptoms of disease. The vigour of the tree was also considered.

2.2.3. Key measurements were obtained using a diameter tape, clinometer, distometer and logger's tape. Where this was not practical, measurements were estimated.

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

2.2.5. The locations of all key trees have been plotted according to measurements taken on-site.

2.2.6. Finally, a *Retention Category* was allocated. The relevant BS5837 2012 cascade chart is duplicated below.

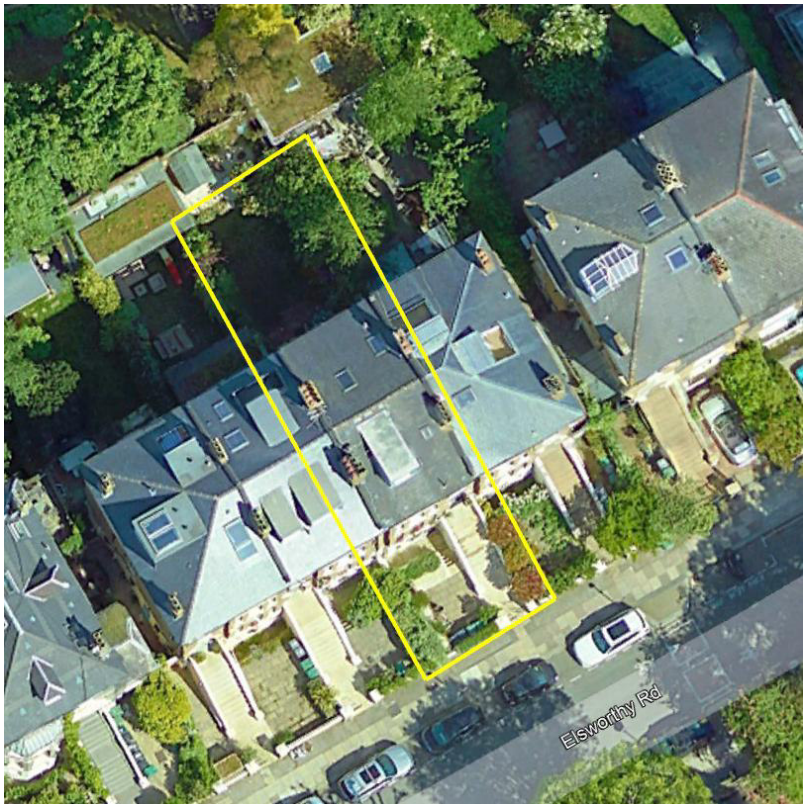
Table 1 **Cascade chart for tree quality assessment**

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

2.2.7. Further guidance on interpreting BS 5837 and our survey methodology is given in Appendix 1.

## 2.3. Survey Extent

2.3.1. The area indicated below[1] shows the extent of the site. Our survey included all trees within the curtilage of the property and those adjacent to it.




## 2.4. Summary of Observations

2.4.1. 36 Elsworth Road is a residential mid-terrace Town House converted into flats. The property has a garden to the front and rear.

2.4.2. No significant vegetation was identified within the curtilage of the site.

2.4.3. Beyond the curtilage of the site, we identified three Retention Category B trees (T1 & G3) and one Retention Category C tree (T2).

2.4.4. The Tree Constraints Plan and Tree Data Schedule (see Appendix 4) should be referred to for descriptions and locations of all trees.

[1] 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 trees were all deemed to be in an acceptable condition, and no significant defects were observed. Consequently, no remedial works have been recommended.

## 3.2. Future Inspections

3.2.1. 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 | G003 |
| 3 | T001, T002 |

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

## 3.3. Statutory Protection

3.3.1. We are not instructed to determine whether the trees are protected by a tree preservation order or grow within a conservation area.

3.3.2. Before undertaking most works on trees protected by a tree preservation order, 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 intention. 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.

## 3.4. Species Present – Additional Information

3.4.1. 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.

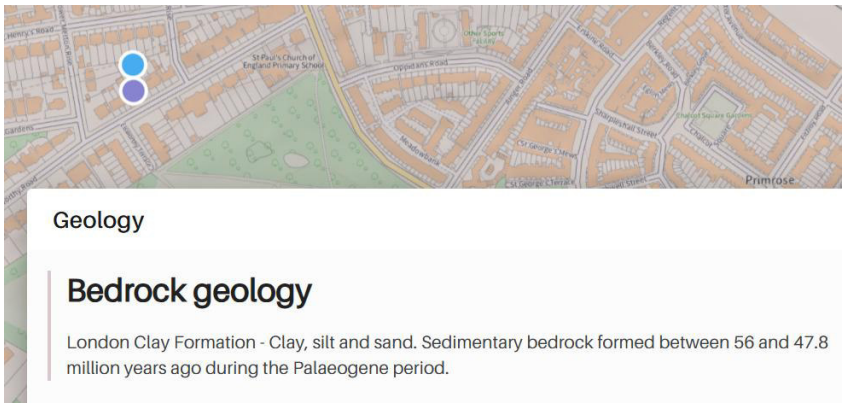
| Species | Typical Height at Maturity (m) | Typical Canopy Spread at Maturity (m) | General Notes |
|---|---|---|---|
| Birch | 18 | 10 | Deciduous native tree. A pioneer species requiring good lighting levels that will readily colonise open ground. Relatively short lived and surpassed in woodland by 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. |
| Cherry | 8 | 10 | Many cultivars available, bred for their abundance of spring flowers, edible cherries or ornamental bark (e.g. Tibetan Cherry). Usually white or pink flowering, often in very early spring. Usually with a single bole to around 2.5m and multi-stemmed thereafter. Most varieties have excellent autumn colour. |
| 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.

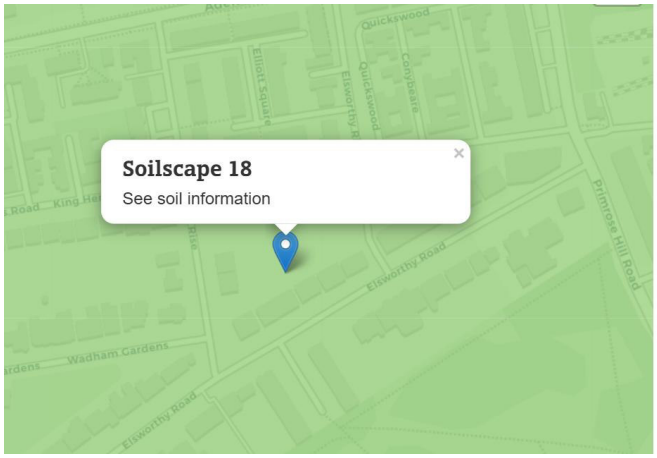
# 4. Local Geology and Soils

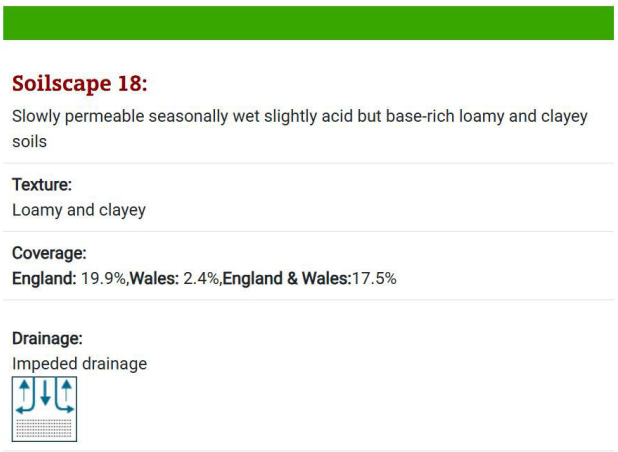
## 4.1. Desktop Research

4.1.1. Desktop research into local geology based on the postcode NW3 3DL 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 above, local soils are assumed to have a loamy and 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 slurrying 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 that can tolerate heavy soils should be selected.

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. Arboricultural Impact Assessment

## 5.1. Overview

5.1.1. A single-story extension is proposed to the rear of the property. The extension will extend approximately 4m beyond the existing rear wall and will span the width of the property, as indicated on the drawings in Appendix 4. The existing layout is indicated in black, the footprint of the proposed layout is indicated in red.

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

| Activity | Trees Potentially Affected |
|---|---|
| Tree Removal | None |
| Tree Pruning | T1 |
| RPA: Extension Foundations | T1 |
| RPA: Other Foundations | None |
| RPA: New Hard Surface | None |
| RPA: Replace Existing 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) |

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

## 5.2. Tree Removal

5.2.1. All trees are to be retained.

## 5.3. Tree Pruning

5.3.1. It is proposed to crown lift T1 where it overhangs the proposal to a height of approximately 4m (from 2m). This will enable adequate clearance for access and adequate clearance between the canopy and the proposal. This will only require the removal of fine, tertiary branches, as indicated in the accompanying image.

5.3.2. 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.

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

## 5.4. Impact of Foundations

5.4.1. The table below assesses the impact of proposed foundations in Root Protection Areas:

| Tree No | Nature of Foundation | Portion of RPA | Recommended Mitigation |
|---|---|---|---|
| T1 | Shallow | 14% | <u>Shallow Raft or Beam Foundation Method</u><br>• In the direction of the trees, excavation is not to exceed 250mm beyond the build-line.<br>• Excavation depth for raft or beam not to exceed 250mm.<br>• Hand tools to be used to excavate.<br>• Excavation to be supervised by the project arborist.<br>• Exposed roots over 25mm diameter shall be retained and protected with damp hessian if practicable, else pruned by the arborist.<br>• RC Raft or beam installed. This may be supported by narrow diameter piles (max 300mm diameter).<br>• Trial pits excavated to determine pile locations. All roots over 25mm diameter to be retained intact and pile relocated. |

5.4.2. These measures accord with industry best-practice[2] and shall ensure minimal impact on roots.

## 5.5. Impact of Surfacing

5.5.1. No new hard surfaces are proposed within the Root Protection Areas of any trees.

## 5.6. Underground Services

5.6.1. The proposal requires no underground services to be excavated through any Root Protection Areas.

## 5.7. Changes in Ground Levels

5.7.1. Arboricultural advice and approval from the local authority should be sought before changing any ground levels within the Root Protection Area of any retained tree. Even very shallow excavation can have detrimental impacts on tree health.

## 5.8. Soil Compaction

5.8.1. 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.

5.8.2. 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.

5.8.3. 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.

[2] BS 5837 (2012 section 7.5 and 7.6)

## 5.9. Demolition Activities

5.9.1. Care is required to avoid damaging trees when removing adjacent surfaces or structures. Surfaces must be lifted using hand tools or a carefully marshalled mechanical excavator. Walls must be demolished away from stems and in a manner that doesn't damage branches. Removal of underground foundations requires extra special care to avoid root damage. During the implementation of this project, the following activities require special care:

- Removal of surfacing close to T1

## 5.10. Waste and Materials Storage

5.10.1. 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.

5.10.2. 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.

## 5.11. Cabins and Site Facilities

5.11.1. 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.

## 5.12. Boundary Treatments

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

## 5.13. Impact of Retained Trees on the Development

5.13.1. Some occasional trimming of the canopies of T1 and T2 may be required in the future to maintain an appropriate distance from the proposed buildings. However, these trees overhang the boundary and would likely require trimming in the future regardless of the proposal. All other retained trees are located at sufficient distances from any proposed buildings and shall have ample room for future growth.

5.13.2. 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.

## 5.14. Arboricultural Method Statement

5.14.1. 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.

# 6. Photographs

For photo locations see the accompanying Tree Location Plan

Photo 1.

Photo 2.

Photo 3.

Photo 4.

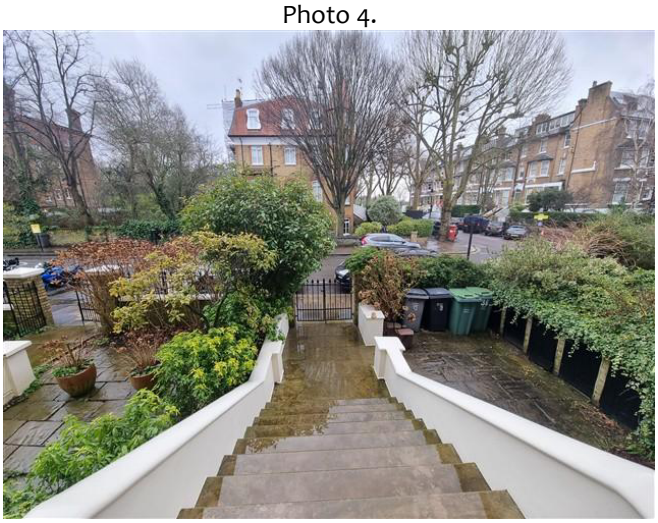


Photo 5.

Photo 6.

# Appendix 1: BS 5837: 2012 – Interpretation Guide

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 planning applications to form balanced judgments.

## Stage 1: Survey Details and Notes

A ground-level visual survey is undertaken. Only trees with a stem diameter over 75mm, which lie within the site boundary or relatively close to it, are included.

Where applicable, trees with significant defects are highlighted and appropriate remedial works are recommended.

Wherever practicable dimensions are obtained using diameter tapes, logger's tapes, distometers and clinometers. Where obstacles prevent accurate measurement, dimensions are estimated. Trees on privately owned third-party land 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:

**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 these categories. 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.

## 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 on the proposal. The arborist may recommend mitigation strategies to minimise these impacts and help achieve a more harmonious juxtaposition between buildings and trees.

## 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: Glossary

This section explains the terms used in the **Tree Data Schedule** (see Section 3 and Appendix 4).

## 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** | Notable tree with features associated with atypically advanced age (such as unusually large girth, crown retrenchment or significant stem decay). Veteran trees have a high habitat value and require a Buffer Zone / RPA with a radius of at least 15x stem diameter and extending at least 5m beyond the dripline. Any natural or semi-natural habitats within the buffer zone should be well protected and retained (or improved) as part of the development. Lawns and cultivated gardens should be discouraged. See https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions |
| **Over Mature** | Tree with declining health but not worthy of veteran status. |

**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. |

Where funds permit, works should be undertaken sooner, though **it is not recommended that the timescales above are extended**.

**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

A general glossary of arboricultural terms may be found on our website at
https://www.crowntrees.co.uk/crown-tree-consultancy/glossary-tree-terms/

# Appendix 3: Author's / Arborist's Qualifications

**Qualifications & Experience of Ivan Button N.C.H. (Arb), FDSc (Arb), BSc (Hons), P.G.C.E., M. Arbor. A.**

**Early Career**

Before and whilst attending college and university (1983 – 1990) Ivan worked as a gardener and also within the building industry where he received training in a broad range of building skills. In 1989 Ivan obtained a BSc (Hons) in psychology at Leeds University followed by a P.G.C.E at The University of Wales in 1990. After one year of teaching, he returned to the construction activity and worked on new builds, refurbishments and groundworks until 1995.

**Arboriculture**

In 1996 Ivan obtained a NCH (Arboriculture) at the University of Lincoln and became a member of the Arboricultural Association. He then received further arboricultural consultancy training with Peter Wynn Associates for one year before establishing a tree surgery and landscaping business in 1998.

In 2005 Ivan commenced full time employment with JCA Ltd, an Arboricultural Association registered consultancy where he soon adopted a senior role responsible for five consultants. During this time, he obtained a FDSc (Arboriculture) at the University of Lancashire, which he passed with distinction.

Since 2013, Ivan has been the Director and Principal Consultant of Crown Consultants Ltd which provides Arboricultural Reports for the purposes of Development, Safety, Management, Mortgage, Subsidence, Mitigation and Litigation. In 2015, he acted as tree officer for Barnsley Council and has since provided consultancy services to other local authorities.

He has obtained the LANTRA *Professional Tree Inspector* Qualification promoted by the Arboricultural Association and recognised as appropriate for all levels of tree inspection.

He is a long-standing member of the Consulting Arborist Society and has obtained CAS accreditations for Tree Inspection, Planning, Mortgage Reports (Subsidence Risk Assessment) and for his expert witness work.

At the time of writing, he has written approximately sixty CPR-compliant reports (civil and criminal) covering a range of subjects including Subsidence Damage, Personal Injury, Direct Root Damage, Professional Negligence, TPO Breaches.

Ivan is a long-standing professional member of the Arboricultural Association and the International Society of Arboriculture.

He is a licensed Quantified Tree Risk Assessment user.

Ivan has undertaken Bond Solon expert witness training and has obtained the University of Cardiff Expert Witness certificate. He has given written and oral evidence.

Between 2008 and 2017 he was registered as a Sweet and Maxwell Checked Expert Witness.

**Qualifications & Experience of Emma Hoyle FDSc (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 practice 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 Joe Taylor – M. Arbor. A, 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 to keep abreast of industry best practices.

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.

**Qualifications & Experience of Sarah Alway – M. Arbor. A, FdSc (Arboriculture).**

Sarah obtained an FdSc in Arboriculture and Tree Management at the University of Central Lancashire in 2021 which she passed with distinction. She is a member of the Arboricultural Association and regularly attends seminars and events to keep abreast of developments in industry knowledge and current best practice 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.

**Qualifications & Experience of Carl Lothian – BSc (Hons) (Arboriculture).**

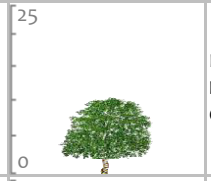
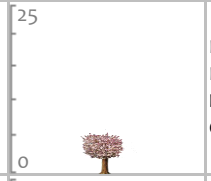
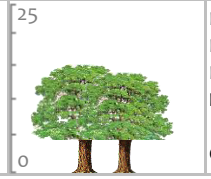
Carl began his career undertaking a Level 3 extended diploma in arboriculture and forestry at Merrist Wood College in 2015. Upon completion of his diploma, Carl worked with several tree surgery firms completing a range of arboricultural works. In 2018 Carl began his BSc (Hons) in arboriculture and urban forestry, graduating with a first-class degree and attaining the Institute of Chartered Foresters student of the year award.

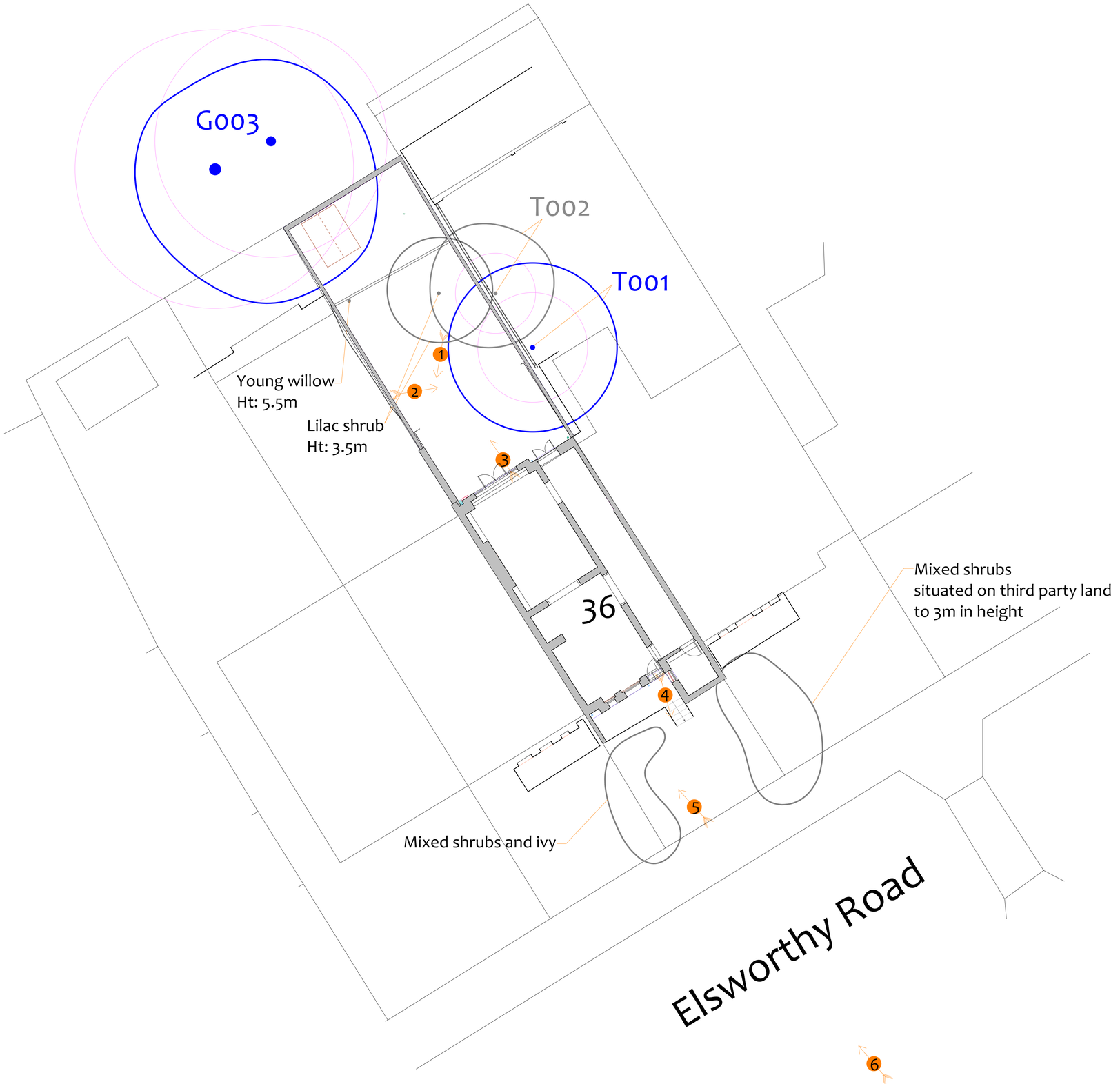
After graduating, Carl worked as a TreeRadar technician where he carried out tree root and decay surveys with specialist ground-penetrating radar equipment. During this time Carl was fortunate enough to work at prestigious sites, such as the Palace of Westminster and the National Maritime Museum.

Whilst working at Crown, Carl has undertaken a range of tree surveys and written reports relating to development, safety, subsidence, and decay detection. Carl is a professional member of the Consulting Arborist Society and an associate member of the Institute of Chartered Foresters.

# Appendix 4: 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<br>G = Group<br>H = Hedge | Age & Species | Height (m) | Crown Ht (m) | Diameter (cm) | Crown Spread (m)<br>N<br>W E<br>S | Scaled Tree Diagram (m)<br>9 0 9 | Notes | Recommendations<br>(Independent of any development proposals)<br>Priority / Inspect Freq (yrs) | Vigour<br>Physiological Condition<br>Structural Condition | Amenity Value<br>Life Expectancy (yrs)<br>Retention Category |
|---|---|---|---|---|---|---|---|---|---|---|
| **T001** | Semi-Mature<br>**Birch**<br>Betula sp. | 10 | 2 | 22 | 4<br>4 4<br>4 |  | Position: Situated on third party land.<br>**Defects: No significant defects observed.**<br>Other: Limited inspection, dimensions estimated. | No action required.<br>n/a / 3 | Moderate<br>Good<br>Good | Low<br>40+<br>**B-** |
| **T002** | Semi-Mature<br>**Cherry**<br>Prunus sp. 'cherry'. | 5 | 2 | 16 | 3.5<br>3 3<br>2.5 |  | Position: Situated on third party land.<br>History: Heavily reduced.<br>**Defects: No significant defects observed.**<br>Other: Limited inspection, dimensions estimated. | No action required.<br>n/a / 3 | Moderate<br>Good<br>Good | Low<br>40+<br>C |
| **G003** | Early-Mature<br>**Sycamore**<br>Acer pseudoplatanus. | av<br>15 | av<br>5 | av<br>45.8 | av<br>4<br>4 4<br>7<br>each |  | Position: Situated on third party land.<br>Form: 2 close growing specimens.<br>History: Heavily reduced.<br>**Defects: Significant deadwood and decay developing (acceptable condition at present).**<br>Other: Limited inspection, dimensions estimated. | No action required.<br>n/a / 1.5 | Moderate<br>Good<br>Fair | Moderate<br>40+<br>**B-** |




| | |
|---|---|
| Drawing No: | CCL 12142 / TCP Rev: 1 |
| Title: | Tree Constraints Plan (Existing Layout) |
| Site: | Flat 1-2, 36 Elsworthy Road NW3 3DL |
| Scale: | 1:200 |
| Paper Size: | A1 |

0 5 10m

CROWN Tree Consultancy 08000 14 13 30

**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. |

# Tree Constraints Plan

Status: Final

BS 5837 Root Protection Area (radius = 12xstem diameter)

Root Protection Area needing amendment due to site conditions, e.g. presence of exising 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

1 Photo 1

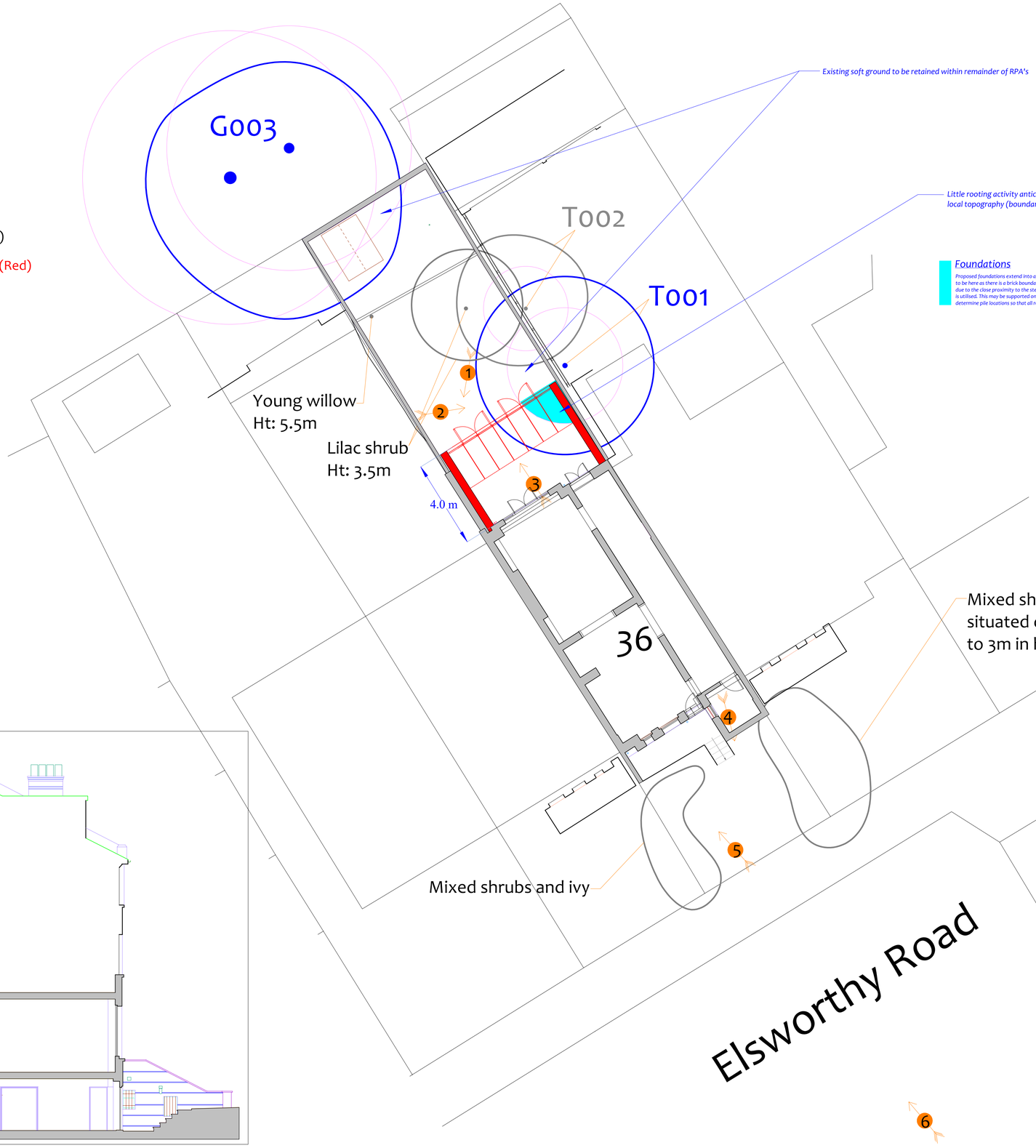
MN = Measured North:

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) | m² | Square (m) |
| T001 | Birch | 10 | 2.6 | 22 | 4.7 |
| T002 | Cherry | 5 | 1.9 | 12 | 3.4 |
| G003 | Sycamore | 15 | 5.5 | 95 | 9.7 |

Existing Layout (Black)

Proposed Layout (Red)



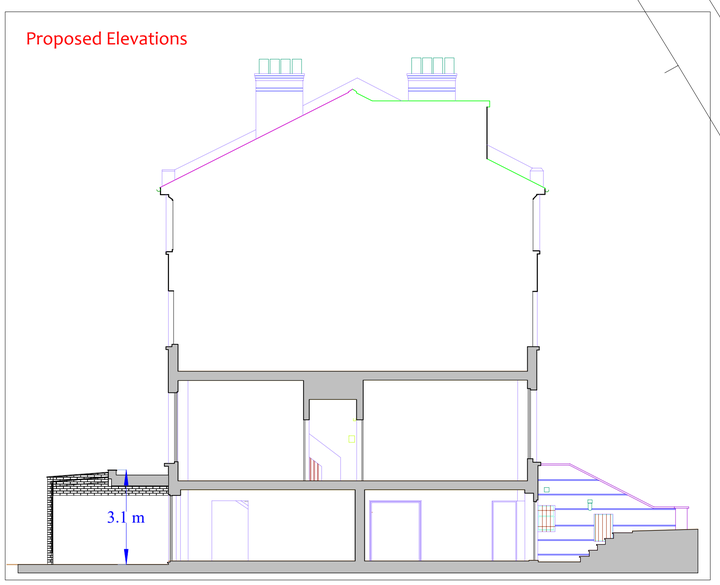

## Foundations

*Proposed foundations extend into approximately 14% of RPA of T1. Fewer roots are anticipated to be here as there is a brick boundary wall that separates the site from the tree. However, due to the close proximity to the stem of T1, we recommend a shallow raft or beam foundation is utilised. This may be supported on narrow diameter piles. Trial pits shall be excavated to determine pile locations so that all roots over 35mm diameter can be retained.*

## Pruning

*It is proposed to crown lift T1 where it overhangs the proposal to a height of approximately 4m (from 2m). This will enable adequate clearance for access and adequate clearance between the canopy and the proposal. This will only require the removal of fine, tertiary branches, as indicated below. The proposed pruning shall not have a significant impact on tree health or local levels of visual amenity.*

Proposed Elevations




| | |
|---|---|
| Drawing No: | CCL 12142 / IAP Rev: 1 |
| Title: | Impact Assessment Plan |
| Site: | Flat 1-2, 36 Elsworthy Road NW3 3DL |
| Scale: | 1:100 |
| Paper Size: | A1 |

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**Tree Retention Categories**
Stems & canopies shown

| | |
|---|---|
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| 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

BS 5837 Root Protection Area (radius = 12xstem diameter)

Root Protection Area needing amendment due to site conditions, e.g. presence of exising 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

X Tree to be removed to facilitate the proposal

X 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) | m² | Square (m) |
| T001 | Birch | 10 | 2.6 | 22 | 4.7 |
| T002 | Cherry | 5 | 1.9 | 12 | 3.4 |
| G003 | Sycamore | 15 | 5.5 | 95 | 9.7 |

## Ground Protection Measures

Within Restricted Activity Zones, soils containing roots may be subject to compaction due to general construction activity (including pedestrian activity and use of plant machinery). In order to minimise compaction, it is proposed to ensure that a suitable load-spreading surface is in place at all times.

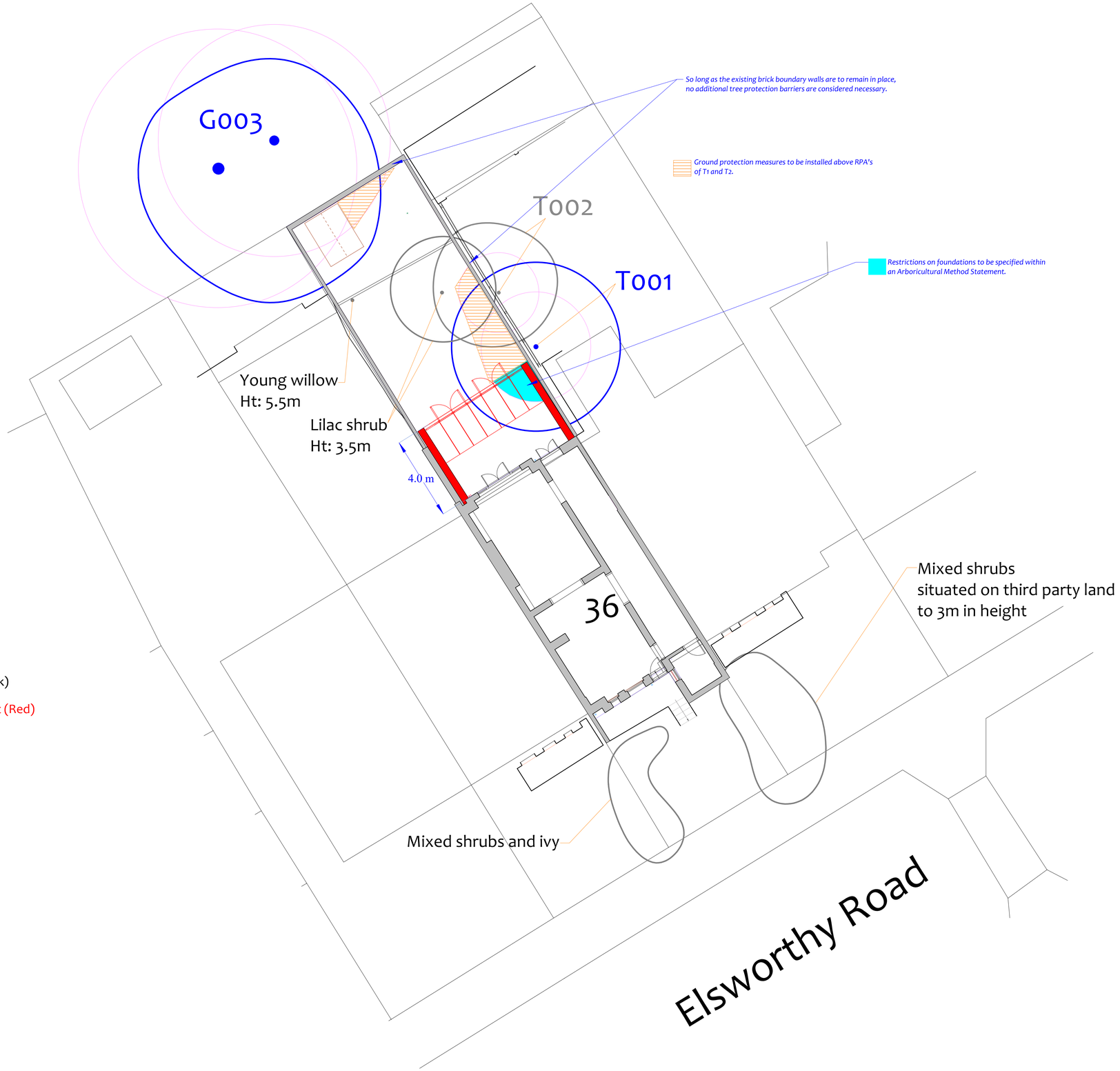
Any existing hard surfacing may be retained where engineers consider it adequate to spread the load of construction traffic. Otherwise, it will be reinforced or replaced with adequate ground protection measures.

Unless specified otherwise, ground protection will consist of 24mm OSB boards laid at double thickness and screwed together to prevent slippage. The ground will be made even by raking, and by adding a 100mm of sand or woodchip, wherever vehicular access is proposed. Where only pedestrian traffic will occur, boards or planks may be laid directly onto the ground or supported by a scaffold framework. The scaffold will be founded on poles driven into the ground and/or onto blocks (to raise the scaffold) with additional couplings to make the framework secure.

Where engineers consider OSB boards to be inadequate (e.g. for large plant machinery where the tracks may chew up the timber) sturdier ground protection measures will be installed such as road plates, or 100mm of 7–40mm angular gravel installed in 3D cellular confinement system (e.g. Cellweb TM).

If a piling mat is required, specifications will be agreed between engineers and the project arborist.

The ground protection measures will be installed and approved before commencement of demolition and construction activity and before the arrival of plant machinery or materials. They shall remain in place until all heavy construction activity is complete or until they are due to be replaced with a new hard surface.




Existing Layout (Black)

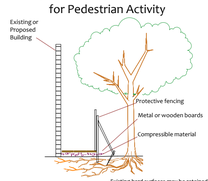
Proposed Layout (Red)

MN

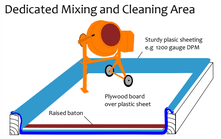
# Tree Protection Plan

Ground Protection Measures

Ground Protection suitable for Pedestrian Activity




Dedicated Mixing and Cleaning Area




| | |
|---|---|
| Drawing No: | CCL 12142 / TPP Rev: 1 |
| Title: | Tree Protection Plan (Existing Layout with Proposals Overlaid) |
| Site: | Flat 1-2, 36 Elsworthy Road NW3 3DL |
| Scale: | 1:100 (0 – 5) Paper Size: A1 |

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# Tree Protection Plan

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