Landmark Trees

**ARBORICULTURAL IMPACT ASSESSMENT REPORT FOR:**

139-147 Camden Road

London

NW1 9HA

**INSTRUCTING PARTY:**

Private Client c/o Engine Room

2 Cardinal Street

Ipswich

IP1 1LG

**REPORT PREPARED BY**

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**Ref:** EGR/139CDR/AIA/01a

**Date:** 4th October 2022

## PART 1: MAIN TEXT



## PART 2 - APPENDICES



## PART 3 - PLANS



### DOCUMENT HISTORY

| Revision | Status | Comments | Date |
|---|---|---|---|
| Rev 0 | DRAFT | For Internal Review (Client / Design Team) | 22/02/22 |
| Rev 01a | APPROVED | For External Issue (Planning) | 4/10/22 |
| | | | |

## 1. SUMMARY

1.1 The existing site is a car parking area standing next to a number of trees potentially constraining development. The proposal includes the construction of a four-storey apartment building.

1.2 There are 5 trees on adjoining land outside of the application boundary that are within close proximity to the development and need to be assessed. These are all judged as being either moderate or low-quality trees.

1.3 The report has assessed the impacts of the development proposals and concludes there would be at most a low impact on the resource: one tree will be pruned to facilitate construction. Though pruning here is to serve development, if undertaken to best practice, the scale envisaged should not be altogether untoward in an occupied site and is similar to pruning already undertaken on the tree in question.

1.4 Following the modification of the RPA of the two trees closest to the site to reflect trial pit findings, the default position that structures be located outside the Root Protection Area* (RPA) can be achieved. Net impacts are assessed therefore as being very low.

1.5 Notwithstanding the above assurances, the report sets out a series of recommendations prior and during construction that will ensure impacts to trees are minimised. These are detailed in sections 6.3 and 8 of this report.

1.6 In conclusion, the proposal, through following the above recommendations, will have no, or very limited, impact on the existing trees and is acceptable.

* British Standards Institute: Trees in relation to design, demolition and construction BS 5837: 2012 HMSO, London

## 2. INTRODUCTION

### 2.1 Terms of Reference

2.1.1 Engine Room instructed Landmark Trees (LT) to prepare this Arboricultural Impact Assessment on behalf of their client, to support a full planning application submitted to the London Borough of Camden ('LBC').

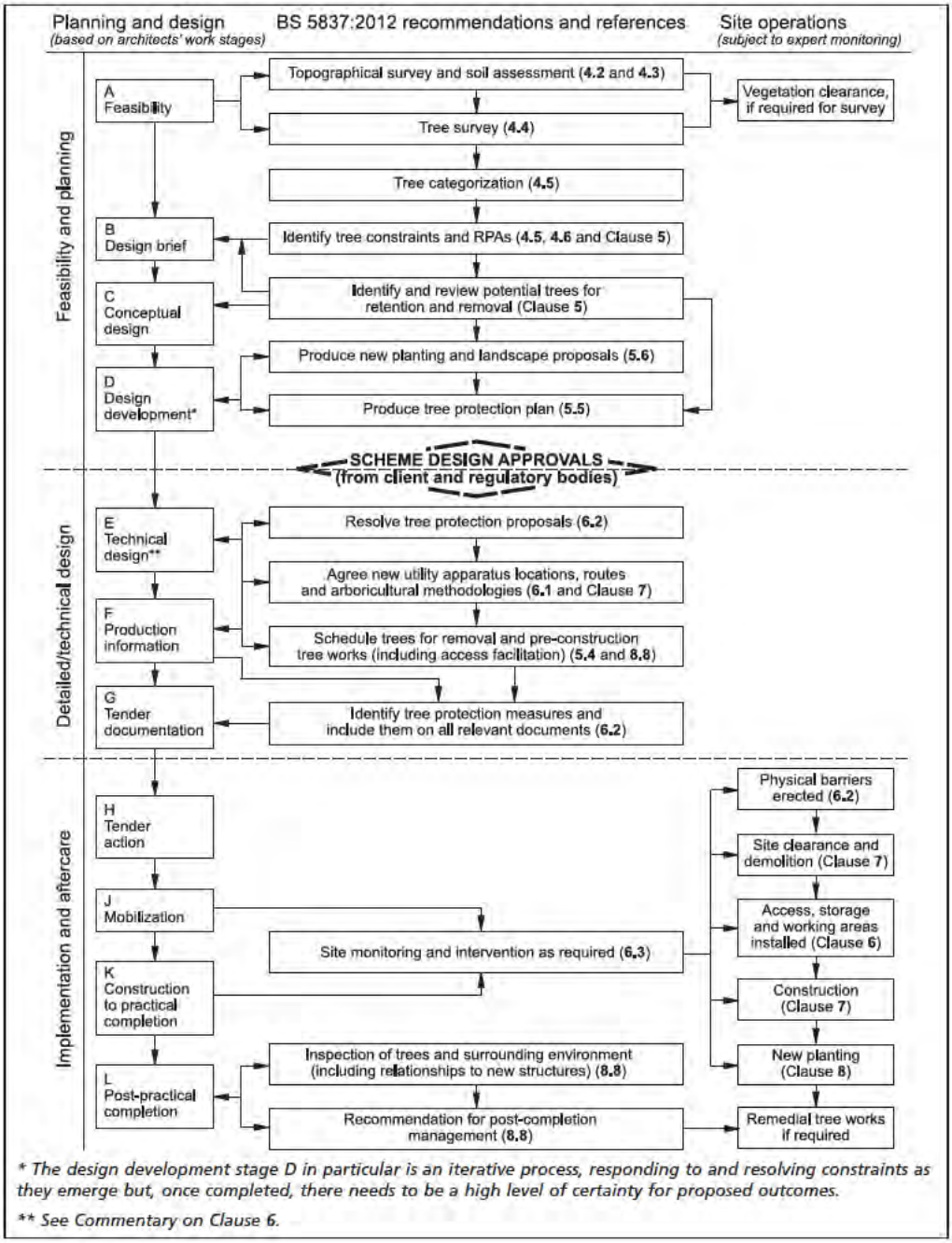
2.1.2 The application relates to the construction of a four-storey apartment building.

2.1.3 This report will assess the impact on trees and their constraints, identified in our survey. Although the proposals were known at the time of the survey, Landmark Trees endeavour to survey each site blind, working from a topographical survey, wherever possible, with the constraints plan informing their evolution. The purpose of the report is to provide guidance on how trees and other vegetation can be integrated into construction and development design schemes. The overall aim is to ensure the protection of amenity by trees which are appropriate for retention.

2.1.4 Trees are a material consideration for a Local Planning Authority when determining planning applications, whether or not they are afforded the statutory protection of a Tree Preservation Order or Conservation Area. British Standard BS 5837:2012 Trees in Relation to Design, Demolition and Construction sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and new developments. The Standard recommends a sequence of activities (see Fig.1 overleaf) that starts in the initial feasibility and design phase (RIBA Stage 2 'Concept Design' as defined in 2012) with a survey to qualify and quantify the trees on site and establish the arboricultural constraints to development (above- and below-ground) to inform the design in an iterative process, and continues with an assessment of the arboricultural impacts of the final design and measures to mitigate such impacts should they be negative. Detailed technical specifications for mitigation and protection measures are devised in the design phase that follows (RIBA Stage 3-4 'Developed and Technical design'), and the sequence ends with the Implementation and Aftercare phase (RIBA Stages 5-7) with the implementation of those measures once planning permission is granted, guided by Arboricultural Method Statements (RIBA Stage 4-5, 'Technical Design and Construction) and professional guidance where appropriate.

2.1.5 **This report is produced to support the Design Team to the Scheme Design Approvals stage in the process chart overleaf.**

**Figure 1 The design and construction process and tree care**




** The design development stage D in particular is an iterative process, responding to and resolving constraints as they emerge but, once completed, there needs to be a high level of certainty for proposed outcomes.*

*** See Commentary on Clause 6.*

## 2.2 Drawings Supplied

2.2.1 The drawings supplied by the client and relied upon by Landmark Trees in the formulation of our survey plans are:

Existing site survey: 22021511 DRAFT part topographic Survey

Proposals: Camden Rd NW1 9HA

## 2.3 Scope & Limitations of Survey

2.3.1 As Landmark Trees' (LT) arboricultural consultant, Ross Gamblin surveyed the trees on site on 10th February 2022, recording relevant qualitative data in order to assess both their suitability for retention and their constraints upon the site, in accordance with British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations [BS5837:2012].

2.3.2 Our survey of the trees, the soils and any other factors, is of a preliminary nature. The trees were SURVEYED on the basis of the Visual Tree Assessment method expounded by Mattheck and Breloer (The Body Language of Trees, DoE booklet Research for Amenity Trees No. 4, 1994). LT have not taken any samples for analysis and the trees were not climbed but inspected from ground level.

2.3.3 The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development. Tree surveys undertaken after a detailed design has been prepared can identify significant conflicts: in such cases, the nature of and need for the proposed development should be set against the quality and values of affected trees. The extent to which the design can be modified to accommodate those trees meriting retention should be carefully considered. Where proposed development is subject to planning control, a tree survey should be regarded as an important part of the evidence base underpinning the design and access statement

2.3.4 A tree survey is generally considered invalid in planning terms after 2 years, but changes in tree condition may occur at any time, particularly after acute (e.g. storm events) or prolonged (e.g. drought) environmental stresses or injuries (e.g. root severance). Routine surveys at different times of the year and within two - three years of each other (subject to the incidence of the above stresses) are recommended for the health and safety management of trees remote from highways or busy access routes. Annual surveys are recommended for the latter.

2.3.5 The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

## 2.4 Survey Data & Report Layout

2.4.1 Detailed records of individual trees are given in the survey schedule in Appendix 1. Tree works comprising the minimum requirements to facilitate development and form part of the planning application are provided at Appendix 2.

2.4.2 A site plan identifying the surveyed trees, based on the Instructing Party's drawings / topographical survey is provided in Part 3 of this report. This plan also serves as the Tree Constraints Plan with the theoretical Recommended Protection Areas (RPA's), tree canopies and shade constraints, (from BS5837: 2012) overlain onto it. These constraints are then overlain in turn onto the Instructing Party's proposals to create a second Arboricultural Impact Assessment Plan in Part 3. Physical measures required to protect trees during construction are then added to this plan to create an Outline Tree Protection Plan. General observations, discussion, conclusions and recommendations follow, below.

## 3. SITE CHARACTERISTICS

3.1 Property Description & Planning Context

Photograph 1: Aerial view of application site outlined in red (Source: Google Maps)

3.1.1 This property is located to the north of the A503 with a commercial building to the south-west and a park to the north-east.

3.1.2 The site is relatively level throughout.

3.1.3 We are not aware of the existence of any Tree Preservation Orders*, but understand the site stands outside any Conservation Area.

3.1.4 Relevant local planning policies comprise Policies G1 and G7 of the London Plan 2021 and Policies A3 and D1 of the Camden Local Plan (adopted 3rd July 2017).

* If the client is aware of such, we ask that they confirm these details with us. A purchaser of a site will be informed of the existence of any TPO's during the conveyancing process; an existing owner of a site must be served with a copy of any TPO's made during their ownership. Landmark Trees can investigate the matter further on instruction from the client, but this is beyond our normal scope of instruction as it can take c. 28 days to fully discover this information (which is beyond our standard turnaround and will substantially delay the issue of the instructed report). Some LPA's maintain registers online and / or offer a more rapid telephone or email response. These services though are not wholly reliable and we have had experience of receiving incorrect advice.

## 3.2 Soil Description

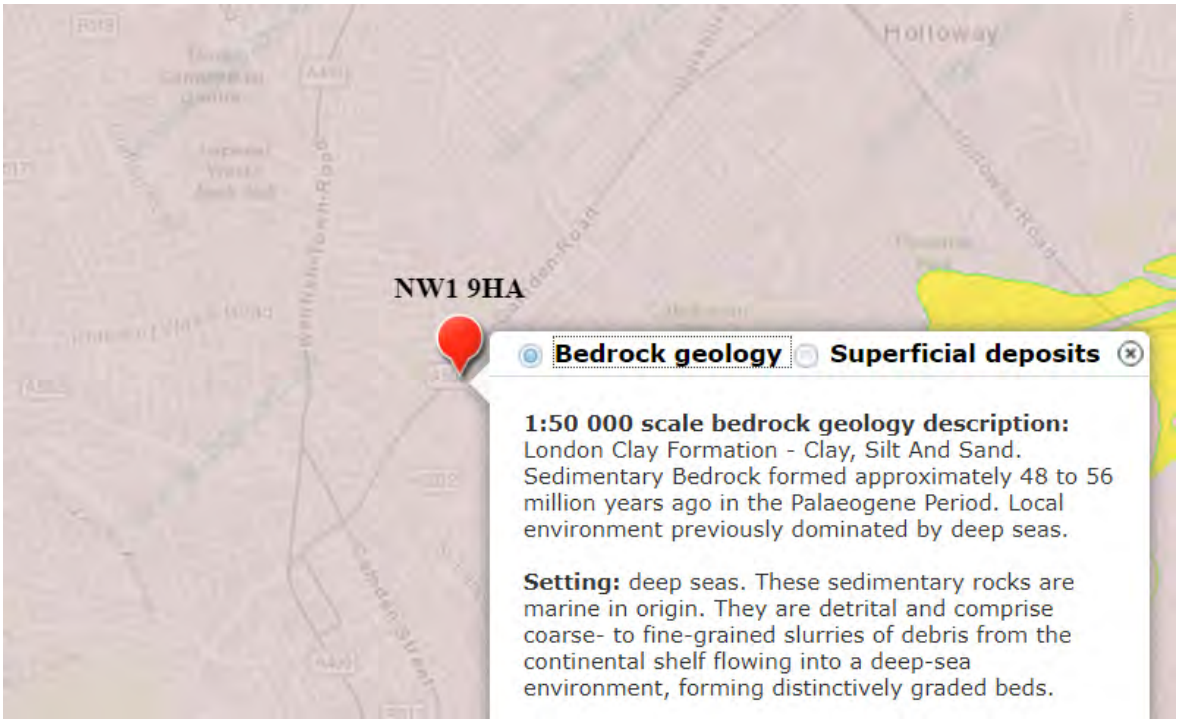



Figure 2: Extract from the BGS Geology of Britain Viewer

3.2.1 In terms of the British Geological Survey, the site overlies the London Clay Formation (see indicated location on Fig.1 plan extract above). The associated soils are generally, highly shrinkable clay; e.g. slowly permeable seasonally waterlogged fine loam over clay. Such highly plastic soils are prone to movement: subsidence and heave. The actual distribution of the soil series are not as clearly defined on the ground as on plan and there may be anomalies in the actual composition of clay, silt and sand content.

3.2.2 Clay soils are prone to compaction during development with damage to soil structure potentially having a serious impact on tree health. The design of foundations near problematic tree species will also need to take into consideration subsidence risk. Further advice from the relevant experts on the specific soil properties can be sought as necessary.

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Photograph 2: Application site

Photograph 3: Brick boundary wall separating T1 from application site

Photograph 4: T2 in centre with T1 to right

## 4. DEVELOPMENT CONSTRAINTS

### 4.1 Primary Constraints

4.1.1 BS5837: 2012 gives Recommended Protection Areas (RPA's) for any given tree size. The individual RPA's are calculated in the Tree Schedule in Appendix 1 to this report, or rather the notional radius of that RPA, based on a circular protection zone. The prescribed radius is 12-x stem diameter at 1.5m above ground level, except where composite formulae are used in the case of multi-stemmed trees.

4.1.2 Circular RPA's are appropriate for individual specimen trees grown freely, but where there is ground disturbance, the morphology of the RPA can be modified to an alternative polygon, as shown in the diagram below (Figure 2). Alternatively, one need principally remember that RPA's are area-based and not linear – notional rather than fixed entities.

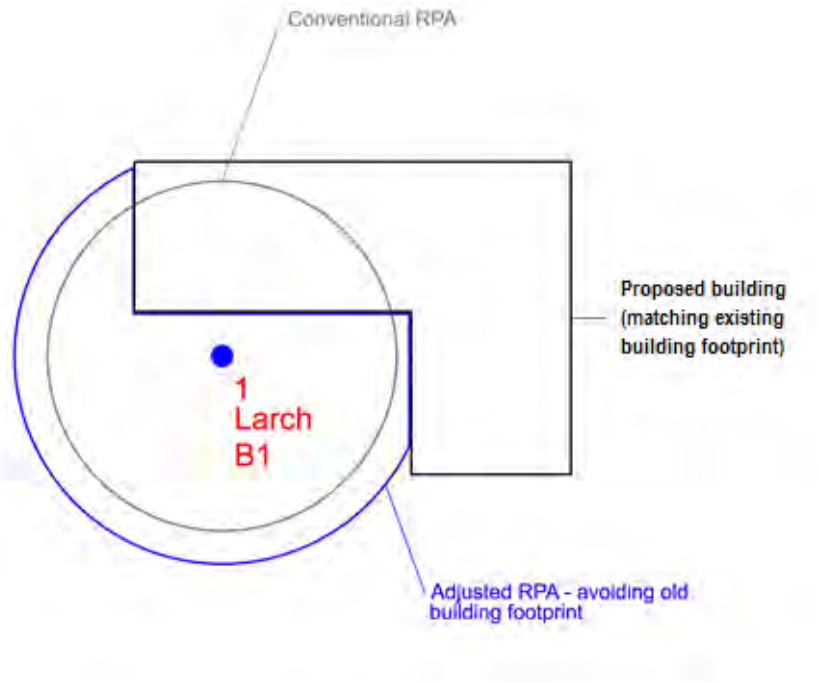


Figure 2 – Generic BS 5837 RPA Adjustments

4.1.3 In BS5837, paragraph 4.6.2 states that RPA's should reflect the morphology and disposition of the roots; where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution. This can be done as a desktop / theoretical exercise but is not altogether (scientifically) reliable and may also invite disagreement / differences of opinion as to that distribution.

4.1.4 LT prefer where possible and practical to raise the issue of modification but suspend judgment until such time as more reliable site investigations have been undertaken (Tree Radar scans and / or trial pits). Of course, the justification for these investigations will depend upon whether trees are (or are likely to be once modified) subject to impacts and also upon their quality / condition: it is generally not worth commissioning a radar study to locate the roots of a poor- or low-quality tree. On other occasions, there may not be the opportunity to commission investigations, either because the access is restricted by ownership / tenancy or the report's turnaround simply does not allow it, and they may need to follow on or be conditioned. **In this instance, the RPA of T1 and T2 have been modified to reflect the findings of the trial pits excavated (see Appendix 3 for full details).** Essentially, two trial pits were excavated, one running parallel to the site boundary immediately opposite the tree and one running perpendicular to the boundary. Neither trial pit found any significant roots, indeed, no soil was found until 450mm below ground level. In addition to this, the footings of the boundary wall extend 300mm into the site and to 600mm depth and there is a buried diesel tank within the theoretical RPA of the adjacent trees

4.1.5 The quality of trees will also be a consideration: U Category trees are discounted from the planning process in view of their limited useful life expectancy. Again, Category-C trees would not normally constrain development individually, unless they provide some external screening function.

4.1.6 At paragraph 5.1.1. BS5837: 2012 notes that "Care should be exercised over misplaced tree preservation; attempts to retain too many or unsuitable trees on a site are liable to result in excessive pressure on the trees during demolition or construction work, or post-completion demands on their removal."

4.1.7 In theory, only moderate quality trees and above are significant material constraints on development. However, low quality trees comprise a constraint in aggregate, in terms of any collective loss / removal, where replacement planting is generally considered appropriate.

4.1.8 In this instance, the proximity of the category B trees present to the application site means they have the potential to pose significant constraints to development.

4.3 Secondary Constraints

4.3.1 The second type of constraint produced by trees that are to be retained is that the proximity of the proposed development to the trees should not threaten their future with ever increasing demands for tree surgery or felling to remove nuisance shading (Figure 3), honeydew deposition or perceived risk of harm.

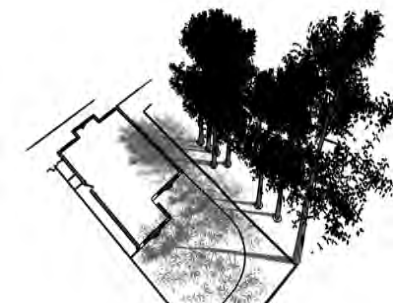

Figure 3 –
Generic Shading Constraints

4.3.2 The shading constraints are crudely determined from BS5837 by drawing an arc from northwest to east of the stem base at a distance equal to the height of the tree, as shown in the diagram opposite. Shade is less of a constraint on non-residential developments, particularly where rooms are only ever temporarily occupied.

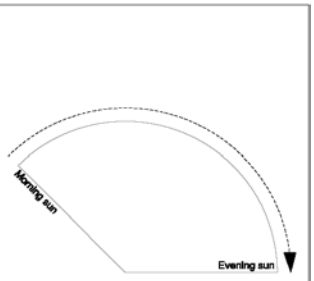


Figure 4 – Shading Arc

4.3.3 This arc (see Figure 4) represents the effects that a tree will have on layout through shade, based on shadow patterns of 1x tree height for a period May to Sept inclusive 10.00-18.00 hrs daily.

4.3.4 Assuming that they will be retained, the orientation of the of-site trees will ensure that shading constraints are minimal, with leaf deposition and honey-dew likely to be as it is today. The significance of these constraints will vary depending on the location and proximity to the proposed re-development which is considered below (in Sections 5 & 6). As specified by BS5837, this section (4) of the report considers only the site as it is, not in the light of pending proposals.

*Note: Sections 5 & 6 below will now assess the impacts of the proposals upon constraints identified in Section 4 above. Table 1 in Section 5 presents the impacts in tabular form (drawing upon survey data presented in Appendices 1 & 2). Impacts are presented in terms of whole tree removal and the effect on the landscape or partial encroachment (% of RPA) and its effect on individual tree health. Section 6 discusses the table data, elaborating upon the impacts' significance and mitigation.*

5.0

## Table 1: Arboricultural Impact Assessment

(Impacts assessed prior to mitigation and rated with reference to Matheny & Clark (1998))

Hide irrelevant | Show All Trees

**Ref:** EGR_139CDR_AIA

| B.S. Cat. | Tree No. | Species | Impact | Tree / RPA Affected | Age | Growth Vitality | Species Tolerance | Impact on Tree Rating | Impact on Site Rating | Mitigation |
|---|---|---|---|---|---|---|---|---|---|---|
| B | 1 | Whitebeam, Swedish | Building Construction within Canopy<br>Building Construction within Canopy | $m^2$<br>N/A % | Mature | Normal | Moderate | Very Low | Very Low | Remedial tree surgery (see Rec. Works) |

## 6. ARBORICULTURAL IMPLICATIONS

6.1 Rating of Primary Impacts

6.1.1 The principal impacts in the current proposals arise from the need to cut back the overhanging crown of T1, particularly the upper part. Undertaken to best practice, the scale envisaged should not be altogether untoward in a more managed and occupied site and essentially extends the pruning already undertaken to the lower canopy. The immediate reduction in canopy cover through pruning is therefore is rated as a low impact unlikely to harm either the resource or the wider area.

6.1.2 Following the modification of the RPA of T1 and T2 to reflect the findings of the trial pit investigations carried out, there is no encroachment of the priority area to protect for either tree.

6.1.3 In our view, the tree(s) are of a species, age and condition sufficient to remain viable in the circumstances provided working methods are adequately controlled. Supervision and monitoring of such measures will also be essential. Subject to these provisos the net impacts are assessed as being low.

6.2 Rating of Secondary Impacts

6.2.1 As the Arboricultural Impact Assessment plan shows, there will be some conflict between the crown of T1 and building line but we would note that some conflict evidently exists already as the crown of this tree has previously been lopped back to the boundary line. I understand that the closest part of this elevation to the tree will be a largely window-free brick façade and thus conclude that the development cannot be considered likely to lead to an increase in the level of pruning from that already seen.

6.2.2 Given Swedish whitebeam is not a species known for prolific regrowth from pruning point, the operation is unlikely to need to be repeated so regularly as to become onerous and thus, the secondary impacts of development are minimal.

6.3 Mitigation of Impacts

6.3.1 The immediate canopy encroachment can be avoided with a minor crown reduction, affecting a 2m lateral clearance.

6.3.2 The shading impacts can be mitigated by building design, with the provision of dual aspect windows and choice of room layout. Some minor crown reduction may be necessary, but not such as to impose a burden of frequent, repetitive management.

## 7. CONCLUSION

7.1 The potential impacts of development are very low in terms of canopy cover lost with no RPA encroachments of trees retained.

7.2 The full potential of the impacts can thus be largely mitigated through design and precautionary measures. These measures can be elaborated in Method Statements in the discharge of planning conditions.

7.3 The species affected are generally tolerant of root disturbance / crown reduction and the retained trees are generally in good health and capable of sustaining these reduced impacts.

7.4 Therefore, the proposals will not have any significant impact on either the retained trees or wider landscape thereby complying with Policies G1 and G7 of the London Plan 2021 and Policies A3 and D1 of the Camden Local Plan (adopted 3rd July 2017). Thus, with suitable mitigation and supervision the scheme is recommended to planning.

## 8. RECOMMENDATIONS

8.1 Specific Recommendations

8.1.1 Recommendations for works required to facilitate development are found in Appendix 2.

8.1.2 Potential wider construction impacts within the RPA's of retained will need to be controlled by method statements specifying appropriate working methods and by consultant supervision as necessary. These method statements can be provided as part of the discharge of conditions.

8.2 General Recommendations for Sites Being Developed with Trees / Outline Arboricultural Method Statement

8.2.1 Any trees which are in close proximity to the proposed development should be protected with a Tree Protection Barrier (TPB). Protective barrier fencing should be installed immediately following the completion of the tree works, remaining in situ for the entire duration of the development unless otherwise agreed in writing by the Council. It should be appropriate for the intensity and proximity of the development, usually comprising steel, mesh panels 2.4m in height ('Heras') and should be mounted on a scaffolding frame (shown in Fig 2 of BS5837:2012). The position of the TPB can be shown on plan as part of the discharge of conditions, once the layout is agreed with the planning authority. The TPB should be erected prior to commencement of works, remain in its original form on-site for the duration of works and be removed only upon full completion of works.

8.2.2 A TPB may no longer be required during soft landscaping work but a full arboricultural assessment must be performed prior to the undertaking of any excavations within the RPA of a tree. This will inform a decision about the requirement of protection measures. It is important that all TPBs have permanent, weatherproof notices denying access to the RPA. Extant areas of RPA that cannot be fenced off and therefore lie outside the CEZ must be protected with fit-for-purpose ground protection. The location and type of ground protection is shown in the Tree Protection Plan in the Appendices

8.2.3 The use of heavy plant machinery for building demolition, removal of imported materials and grading of surfaces should take place in one operation. The necessary machinery should be located above the existing grade level and work away from any retained trees. This will ensure that any spoil is removed from the RPAs. It is vital that the original soil level is not lowered as this is likely to cause damage to the shallow root systems.

8.2.4 Any pruning works must be in accordance with British Standard 3998:2010 Tree work [BS3998].

8.2.5 Where sections of hard surfacing are proposed in close proximity to trees, it is recommended that "No-Dig" surfacing be employed in accordance with BS5837:2012 and 'The Principles of Arboricultural Practice: Note 1, Driveways Close to Trees, AAIS 1996 [APN1]'.

8.2.6 If the RPA of a tree is encroached by underground service routes then BS5837:2012 and NJUG VOLUME 4 provisions should be employed. If it is deemed necessary, further arboricultural advice must be sought.

8.2.7 Numerous site activities are potentially damaging to trees e.g. parking, material storage, the use of plant machinery and all other sources of soil compaction. In operating plant, particular care is required to ensure that the operational arcs of excavation and lifting machinery, including their loads, do not physically damage trees when in use.

8.2.8 To enable the successful integration of the proposal with the retained trees, the following points will need to be taken into account:

1) Plan of underground services.

2) Schedule of tree protection measures, including the management of harmful substances.

3) Method statements for constructional variations regarding tree proximity (e.g. foundations, surfacing and scaffolding).

4) Site logistics plan to include storage, plant parking/stationing and materials handling.

5) Tree works: felling, required pruning and new planting. All works must be carried out by a competent arborist in accordance with BS3998.

6) Site supervision: the Site Agent must be nominated to be responsible for all day-to-day arboricultural matters on site. This person must:

- be present on site for the majority of the time;
- be aware of the arboricultural responsibilities;
- have the authority to stop work causing, or may cause harm to any tree;
- ensure all site operatives are aware of their responsibilities to the trees on site and the consequences of a failure to observe these responsibilities;
- arrange with the retained arboricultural consultant an initial pre-start briefing to inspect tree protection measures and agree a schedule of monitoring thereof on an initial monthly basis to be reviewed over the duration of works.
- give advance notice (ideally 2 weeks) to retained arboricultural consultant to arrange for supervision of any excavation (especially for services and foundations) within RPA
- make immediate contact with the local authority and/or a retained arboricultural consultant in the event of any tree related problems occurring.

8.2.9 These points can be resolved and approved through consultation with the planning authority via their Arboricultural Officer.

8.2.10 The sequence of works should be as follows:

i) initial tree works: felling, stump grinding and pruning for working clearances;

ii) installation of TPB for demolition & construction;

iii) installation of underground services;

iv) installation of ground protection;

v) main construction;

vi) removal of TPB;

vii) soft landscaping.

## 9. COMPLIANCE: Trees and the Planning System

9.1 Under the UK planning system, local authorities have a statutory duty to consider the protection and planting of trees when granting planning permission for proposed development. The potential effect of development on trees, whether statutorily protected (e.g. by a tree preservation order or by their inclusion within a conservation area) or not, is a material consideration that is taken into account in dealing with planning applications. Where trees are statutorily protected, it is important to contact the local planning authority and follow the appropriate procedures before undertaking any works that might affect the protected trees.

9.2 The nature and level of detail of information required to enable a local planning authority to properly consider the implications and effects of development proposals varies between stages and in relation to what is proposed. Table B.1 provides advice to both developers and local authorities on an appropriate amount of information. The term "minimum detail" is intended to reflect information that local authorities are expected to seek, whilst the term "additional information" identifies further details that might reasonably be sought, especially where any construction is proposed within the RPA.

9.3 This report delivers information appropriate to a full planning application and to these specific proposals as per BS5837 Table B.1 below, providing both minimum details and further additional material in the form of general tree protection recommendations and constructional variation.

Table B.1 **Delivery of tree-related information into the planning system**

| Stage of process | Minimum detail | Additional information |
|---|---|---|
| Pre-application | Tree survey | Tree retention/removal plan (draft) |
| Planning application | Tree survey (in the absence of pre-application discussions) | Existing and proposed finished levels |
| | Tree retention/removal plan (finalized) | Tree protection plan |
| | Retained trees and RPAs shown on proposed layout | Arboricultural method statement – heads of terms |
| | Strategic hard and soft landscape design, including species and location of new tree planting | Details for all special engineering within the RPA and other relevant construction details |
| | Arboricultural impact assessment | |
| Reserved matters/ planning conditions | Alignment of utility apparatus (including drainage), where outside the RPA or where installed using a trenchless method | Arboricultural site monitoring schedule |
| | Dimensioned tree protection plan | Tree and landscape management plan |
| | Arboricultural method statement – detailed | Post-construction remedial works |
| | Schedule of works to retained trees, e.g. access facilitation pruning | Landscape maintenance schedule |
| | Detailed hard and soft landscape design | |

## 10.0 REFERENCES


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Landmark Trees

**Caveats**

This report is primarily an arboricultural report. Whilst comments relating to matters involving built structures or soil data may appear, any opinion thus expressed should be viewed as qualified, and confirmation from an appropriately qualified professional sought. Such points are usually clearly identified within the body of the report. It is not a full safety survey or subsidence risk assessment survey. These services can be provided but a further fee would be payable. Where matters of tree condition with a safety implication are noted during a survey they will of course appear in the report.

A tree survey is generally considered invalid in planning terms after 2 years, but changes in tree condition may occur at any time, particularly after acute (e.g. storm events) or prolonged (e.g. drought) environmental stresses or injuries (e.g. root severance). Routine surveys at different times of the year and within two - three years of each other (subject to the incidence of the above stresses) are recommended for the health and safety management of trees remote from highways or busy access routes. Annual surveys are recommended for the latter.

Tree works recommendations are found in the Appendices to this report. It is assumed, unless otherwise stated ("ASAP" or "Option to") that all husbandry recommendations will be carried out within 6 months of the report's first issue. Clearly, works required to facilitate development will not be required if the application is shelved or refused. However, necessary husbandry work should not be shelved with the application and should be brought to the attention of the person responsible, by the applicant, if different. Under the Occupiers Liability Act of 1957, the owner (or his agent) of a tree is charged with the due care of protecting persons and property from foreseeable damage and injury.' He is responsible for damage and/or nuisance arising from all parts of the tree, including roots and branches, regardless of the property on which they occur. He also has a duty under The Health and Safety at Work Act 1974 to provide a safe place of work, during construction. Tree works should only be carried out with local authority consent, where applicable.

Inherent in a tree survey is assessment of the risk associated with trees close to people and their property. Most human activities involve a degree of risk, such risks being commonly accepted if the associated benefits are perceived to be commensurate.

Risks associated with trees tend to increase with the age of the trees concerned, but so do many of the benefits. It will be appreciated, and deemed to be accepted by the client, that the formulation of recommendations for all management of trees will be guided by the cost-benefit analysis (in terms of amenity), of tree work that would remove all risk of tree related damage.

Prior to the commencement of any tree works, an ecological assessment of specific trees may be required to ascertain whether protected species (e.g. bats, badgers and invertebrates etc.) may be affected.

Landmark Trees

# PART 2 – APPENDICES

## APPENDIX 1

### TREE SCHEDULE

Botanical Tree Names

| | | | |
|---|---|---|---|
| Cherry, flowering | : Prunus spp | Willow, Goat | : Salix caprea |
| Rowan, Mountain Ash | : Sorbus aucuparia | Willow, White | : Salix alba |
| Whitebeam, Swedish | : Sorbus intermedia | Willow, Weeping | : Salix × sepulcralis |
| Wild Service Tree | : Sorbus torminalis | Yew, Common | : Taxus baccata |
| Willow, Crack | : Salis fragilis | | |

Notes for Guidance:

1. Height describes the approximate height of the tree measured in metres from ground level.
2. The Crown Spread refers to the crown radius in meters from the stem centre and is expressed as an average of NSEW aspect if symmetrical.
3. Ground Clearance is the height in metres of crown clearance above adjacent ground level.
4. Stem Diameter (Dm) is the diameter of the stem measured in millimetres at 1.5m from ground level for single stemmed trees. BS 5837:2012 formula (Section 4.6) used to calculate diameter of multi-stemmed trees. Stem Diameter may be estimated where access is restricted and denoted by '#'.
5. Protection Multiplier is 12 and is the number used to calculate the tree's protection radius and area
6. Protection Radius is a radial distance measured from the trunk centre.
7. Growth Vitality - Normal growth, Moderate (below normal), Poor (sparse/weak), Dead (dead or dying tree).
8. Structural Condition - Good (no or only minor defects), Fair (remediable defects), Poor - Major defects present.
9. Landscape Contribution - High (prominent landscape feature), Medium (visible in landscape), Low (secluded/among other trees).
10. B.S. Cat refers to (British Standard 5837:2012 section 4.5) and refers to tree/group quality and value; 'A' – High, 'B' - Moderate, 'C' - Low, 'U' - Unsuitable for retention. The following colouring has been used on the site plans:
    - High Quality (A) (Green),
    - Moderate Quality (B) (Blue),
    - Low Quality (C) (Grey),
    - Unsuitable for Retention (U) (Red)
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is Landscape and 3 is Cultural including Conservational, Historic and Commemorative.
12. Useful Life is the tree's estimated remaining contribution in years.

Landmark Trees

**Site:** 139-147 Camden Road

**Date:** 10/02/22

# Appendix 1

## BS5837 Tree Constraints Survey Schedule

**Landmark Trees Ltd**

**020 7851 4544**

**Surveyor(s):** Ross Gamblin

**Ref:** EGR_139CDR_AIA

| Tree No. | English Name | Height | Crown Spread | Ground Clearance | Stem Diamete | Age Class | Protection Radius | Growth Vitality | Structural Condition | B.S. Cat | Sub Cat | Useful Life | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Whitebeam, Swedish | 10 | 2.5,3,5.5,5 | 3.0 | 600 | Mature | 7.2 | Normal | Good | B | 2 | 20+ | Remote survey only (RS)<br>Recently laterally reduced off application property |
| 2 | Whitebeam, Swedish | 10 | 2.5,3.5,5.5,5.5 | 3.0 | 550 | Mature | 6.6 | Normal | Good | B | 2 | 20+ | |
| G3 | Whitebeam, Swedish | 10 | 5 | 3.0 | 480 | Mature | 5.8 | Normal | Good | B | 2 | 20+ | |
| 4 | Cherry, Ornamental | 4 | 2.5 | 1.0 | 190 | Semi-mature | 2.3 | Normal | Fair | C | 2 | >40 | Bifurcated @ 0.3m |
| 5 | Rowan | 2 | 1.5 | 0.0 | 50 | Young | 0.6 | Moderate | Fair | C | 2 | 20+ | Multistemmed @ base<br>Struggling to establish<br>Poorly formed and stunted |

## APPENDIX 2

**RECOMMENDED TREE WORKS TO FACILITATE DEVELOPMENT (See Table 1)**

Notes for Guidance:

RP - Pre-emptive root pruning of foundation encroachments under arboricultural supervision.
CB - Cut Back to boundary/clear from structure.
CL# - Crown Lift to given height in meters.
CT#% - Crown Thinning by identified %.
CCL - Crown Clean (remove deadwood/crossing and hazardous branches and stubs)*.
CR#% - Crown Reduce by given maximum % (of outermost branch & twig length)
DWD - Remove deadwood.
Fell - Fell to ground level.
FInv - Further Investigation (generally with decay detection equipment).
Pol - Pollard or re-pollard.
Mon - Check / monitor progress of defect(s) at next consultant inspection which should be <18 months in frequented areas and <3 years in areas of more occasional use. Where clients retain their own ground staff, we recommend an annual in- house inspection and where practical, in the aftermath of extreme weather events.
Svr Ivy / Clr Bs - Sever ivy / clear base and re-inspect base / stem for concealed defects.

*Not generally specified following BS3998:2010

Landmark Trees

**Site:** 139-147 Camden Road
**Date:** 10/02/22

**Surveyor(s):** Ross Gamblin
**Ref:** EGR_139CDR_AIA

## Appendix 2

## Recommended Tree Works To Facilitate Development

Hide irrelevant
Show All Trees

| Tree No. | English Name | B.S. Cat | Height | Ground Clearance | Crown Spread | Recommended Works | | Comments/ Reasons |
|---|---|---|---|---|---|---|---|---|
| 1 | Whitebeam, Swedish | B | 10 | 3.0 | 2.5,3,5.5,5 | CB | 1.5-2m | Remote survey only (RS)<br>Recently laterally reduced off application property<br>To facilitate development |

## APPENDIX 3

## TRIAL PIT FINDINGS

# Root Excavation Report

# 139 -147 Camden Road

# London

# NW19HA

Undertaken by

James Abbott

Arboraeration 13th September 2022

## Introduction

Site Address: 139-147 Camden Road, London, NW19HA

Arboraeration were instructed to undertake airspade investigations of trial pits following a tree survey of the site by Adam Hollis of Landmark Trees

**Reason for trial pits**

Trial pits were excavated on the property to establish the extent of rooting in relation to proposed construction works. Trial pits were excavated using an airspade and manual digging tools.

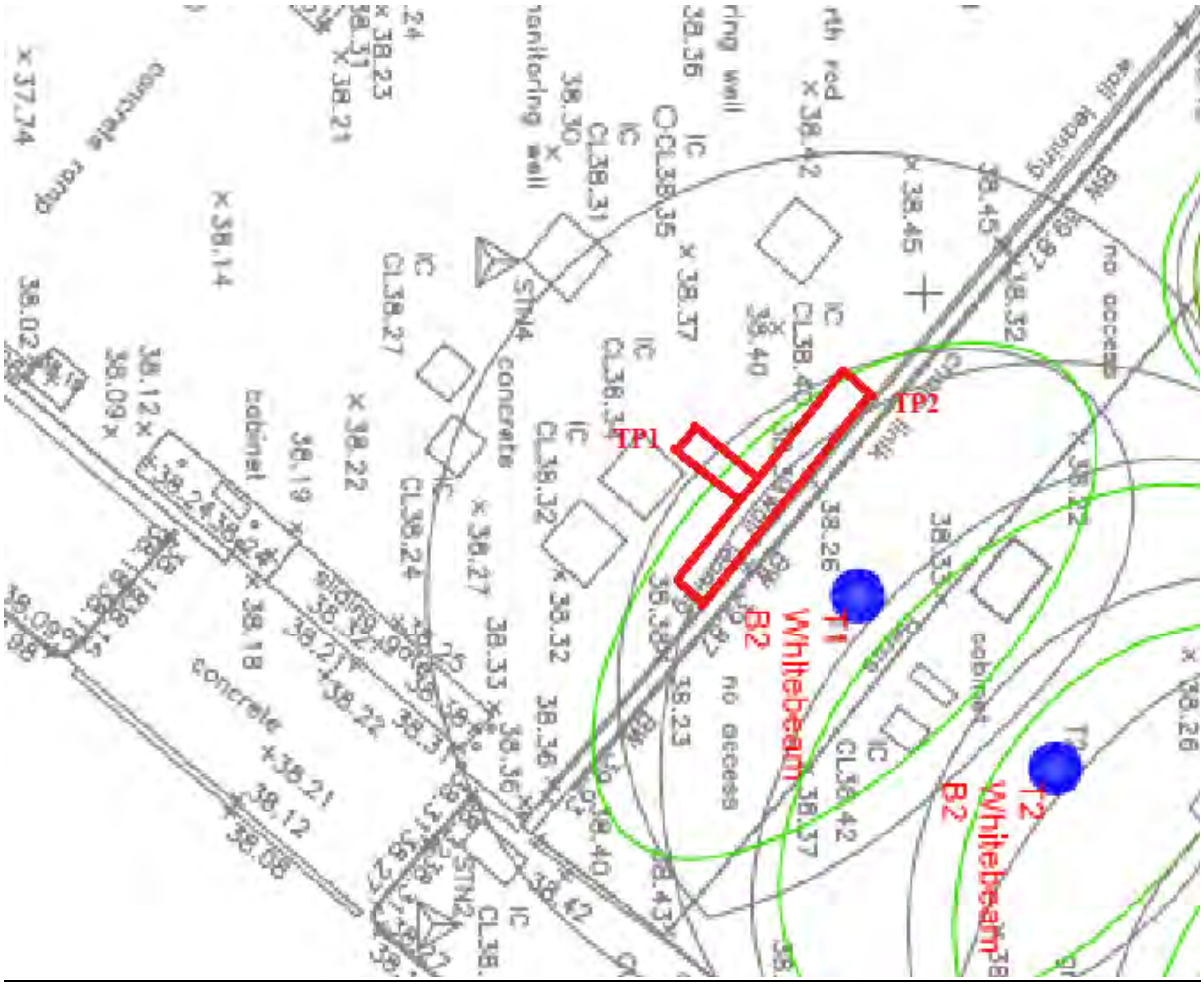
**Trial Pit Results – numbered and located as per plans supplied**

| | |
|---|---|
| Trial Pit 1 | 1.2m Long x 0.25m Wide x 0.6m Deep<br>No Significant rooting |
| Trial Pit 2 | 2.2m Long x 0.25m Wide x 0.4m Deep<br>Significant wall footings at 400mm extending at least 600mm below surface level<br>No significant rooting |

Further Information.

3 Cover Boards were left on site.

Site Layout



Photographic evidence - Trial Pit 1

Photographic evidence - Trial Pit 2

Landmark Trees

# PART 3 – PLANS

**PLAN 1**

**TREE CONSTRAINTS PLAN**


NOTE:

This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.

Root Protection Areas (RPA) are derived from stem diameter measured at 1.5 m above adjacent ground level (taken on sloping ground on the upslope side of the tree base).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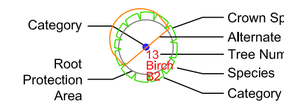
| | |
|---|---|
| Site: 139-147 Camden Road | 1:200@ A2 |
| Drawing Title: Tree Constraints Plan | February 2022 |

Key:

- Category A — High Quality
- Category B — Moderate Quality
- Category C — Low Quality
- Category U — Trees Unsuitable for Retention

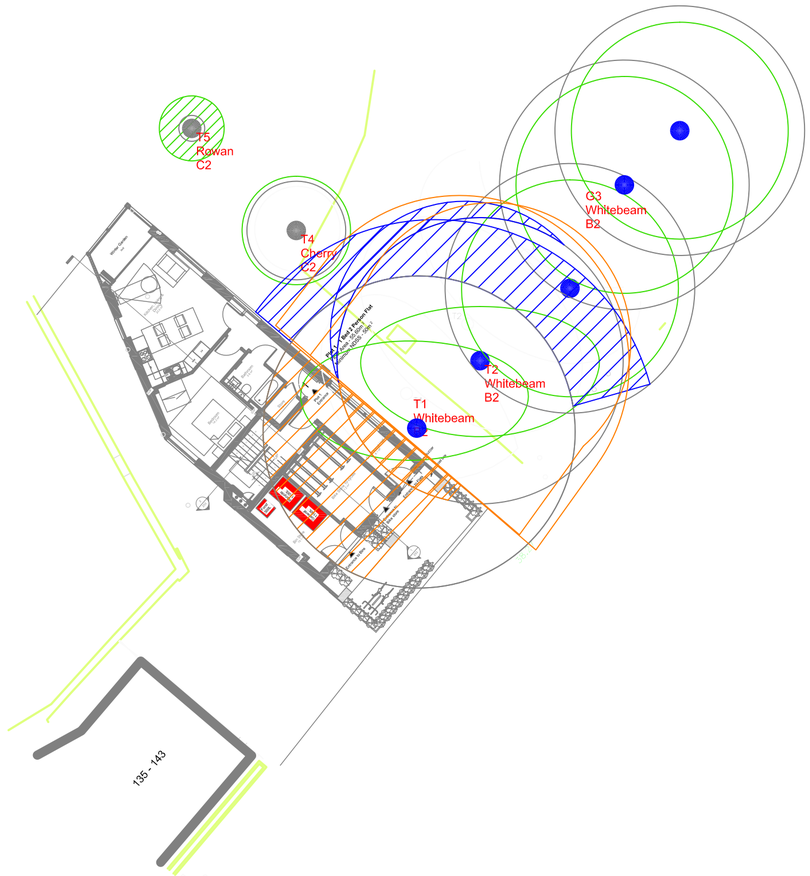



Tree Position Approximate (not shown on original survey)

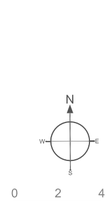
**PLAN 2**

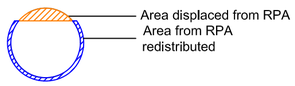
**ARBORICULTURAL IMPACT ASSESSMENT PLAN (S)**

i. Ground Floor




Proposed Ground Floor Plan




NOTE:

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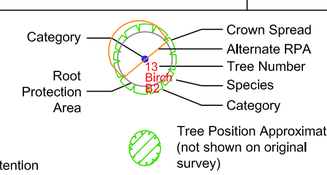
| | |
|---|---|
| Site: 139-147 Camden Road | 1:200@ A2 |
| Drawing Title: Arboricultural Impact Assessment Plan | February 2022 |

Key:

- Category A
  High Quality
- Category B
  Moderate Quality
- Category C
  Low Quality
- Category U
  Trees Unsuitable for Retention

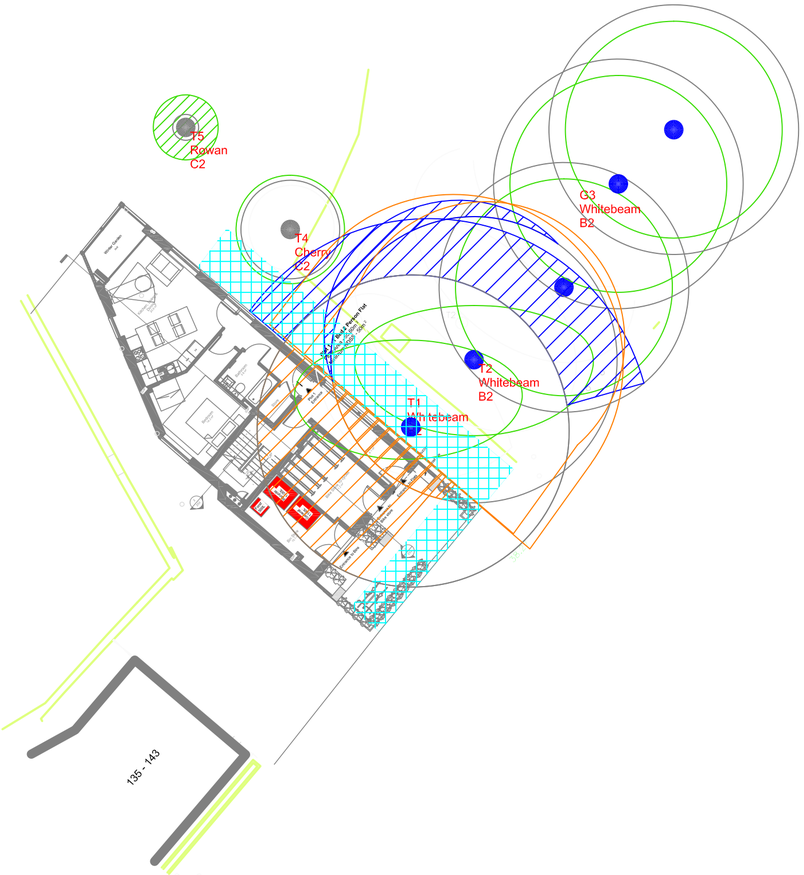



Tree Position Approximate
(not shown on original survey)

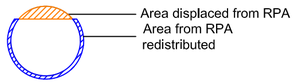
Note: Minor discrepancies between bases in existing and proposed plans may cause some approximation in tree locations

**PLAN 3**

**OUTLINE TREE PROTECTION PLAN**




Proposed Ground Floor Plan




NOTE:

This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.

Root Protection Areas (RPA) are derived from stem diameter measured at 1.5 m above adjacent ground level (taken on sloping ground on the upslope side of the tree base).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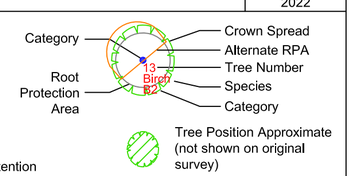
| | |
|---|---|
| Site: 139-147 Camden Road | 1:200@ A2 |
| Drawing Title: Tree Protection Plan | September 2022 |

Key:

- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention
- Ground Protection




Tree Position Approximate (not shown on original survey)

Note: Minor discrepancies between bases in existing and proposed plans may cause some approximation in tree locations