



ARBORICULTURAL IMPACT ASSESSMENT REPORT FOR:

10 Chalcot Square
London
NW1 8YB

INSTRUCTING PARTY:

Private Client c/o Chassay+Last Architects
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DOCUMENT HISTORY

Revision	Status	Comments	Date
Rev 0	DRAFT	For Internal Review (Client / Design Team)	
Rev 01a	Approved	For Planning Application	23/11/2021

1. SUMMARY

- 1.1 The existing site is a residential property with a modest front garden containing a tree that currently prevents safe egress and access. The proposal includes improvement of the existing access to the basement flat at 10a Chalcot Square.
- 1.2 One tree is within close proximity to the proposals and was accordingly assessed. This is an early mature hornbeam, judged as being of moderate quality. We understand the tree is subject to a Tree Preservation Order.
- 1.3 The report has assessed the impacts of the development proposals and concludes there is no alternative to the removal of the subject tree. The impact of this removal is assessed as being moderate over the short term and replacement species are proposed as mitigation.
- 1.4 In conclusion, the proposal, through following the above recommendations, will comply with both the London Plan and local planning policy and is therefore acceptable.

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

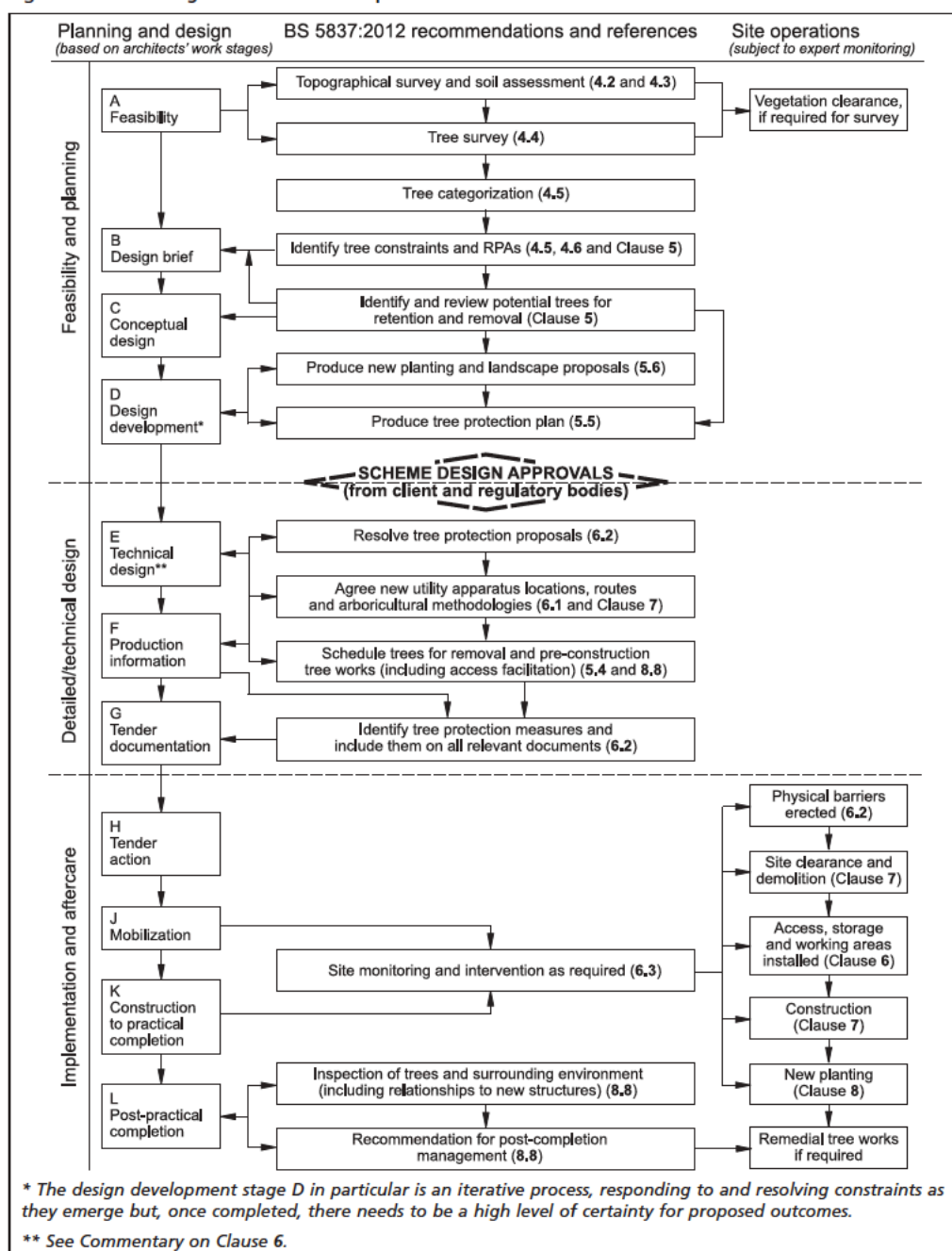
2. INTRODUCTION

2.1 Terms of Reference

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|-------|--|
| 2.1.1 | Chassay+Last Architects 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 | <p>The application relates to the improvement of the existing access to the basement flat. Permission is sought for:</p> <ul style="list-style-type: none"> a) restore the front wall and gateposts of Nos 9A, 10A, 10, 11A & 11 Chalcot Square to their original form and other measures in keeping with the building's listed status; b) replant the front garden of No 10; c) refurbish the remaining front area of No 10 Chalcot Square by replacing the refuse store and restoring the main front path using Yorkstone, and improving access by reconfiguring the steps. |
| 2.1.3 | <p>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.</p> |

- 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') 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



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: 10CS_E03_20211103
- Proposals: 10CS_P02_20211103

2.3 Scope & Limitations of Survey

- 2.3.1 As Landmark Trees' (LT) arboricultural consultant, Ross Gamblin surveyed the trees on site on 10th November 2021, 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
- 2.3.3 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.
- 2.3.4 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

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|-------|--|
| 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 which 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. |

3.0 SITE CHARACTERISTICS

3.1 Property Description & Planning Context



Photograph 1: 10 Chalcot Square

- | | |
|-------|---|
| 3.1.1 | Nos 9-11 Chalcot Square (are Grade II Listed Buildings (listed in October 1971) and covered by Camden's Conservation Area Statement for Primrose Hill, Sub Area 2. The existing access is approximately 700mm in width and passes immediately adjacent to the subject tree. At the tree position the measurement reduces to 475mm. The left-hand pier (when facing the property) is being deformed and the paving on the existing access is being lifted. |
| 3.1.2 | The site has become uneven due to the growth of the tree roots which has now forced a step from the street of 140mm. |
| 3.1.3 | We understand the subject tree is subject to a Tree Preservation Order and we also understand the site stands within the Primrose Hill Conservation Area, both of which will affect the subject trees: it is a criminal offence to prune, damage or fell such trees without permission from the local authority. |
| 3.1.4 | Relevant local planning policies comprise Policies G1 and G7 of the London Plan 2021 and Policies A3, D1 and D2 of the Camden Local Plan (adopted 3rd July 2017). |

3.2 Soil Description

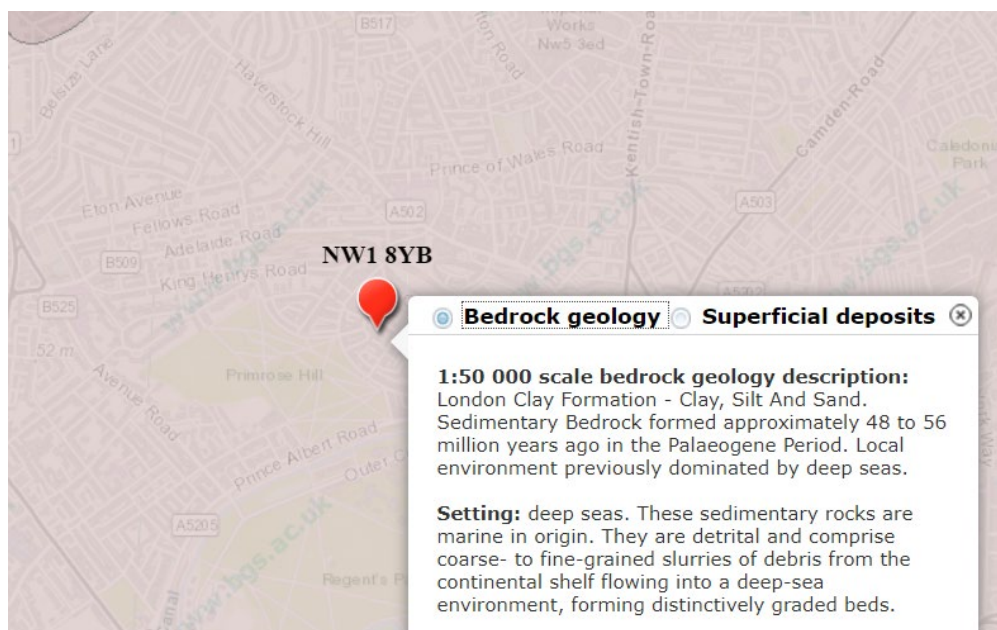


Figure 2: Extract from the BGS Geology of Britain Viewer

- 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.

3.3 Subject Trees

- 3.3.1 The subject tree comprises an early mature common hornbeam assessed as being category* B (Moderate Quality). The tree has previously been topped.

*page 9 of: [British Standards Institute: Trees in relation to design, demolition and construction BS 5837: 2012 HMSO, London](#)

- 3.3.2 Full details of the surveyed tree can be found in Appendix 1 of this report.



4.0 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.

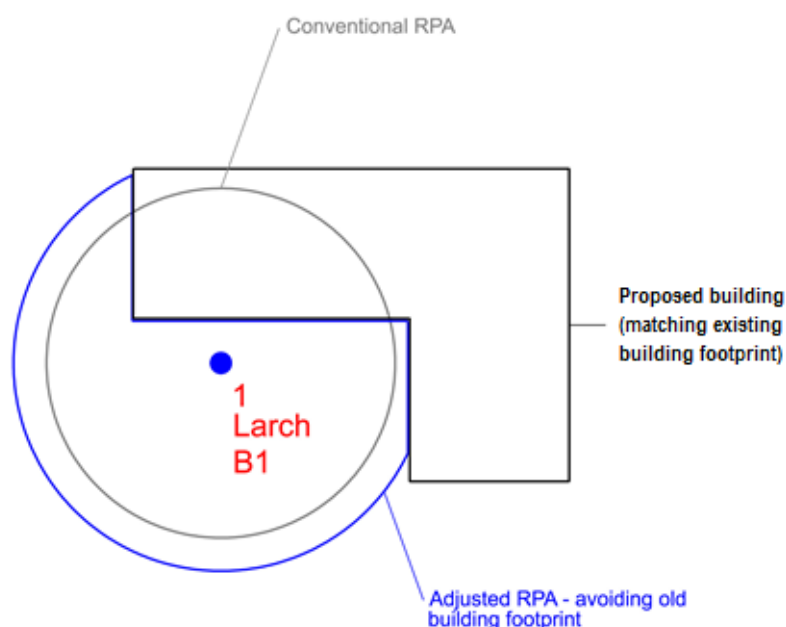


Figure 2 – Generic BS 5837 RPA Adjustments

- 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. **No a priori RPA modifications have been made in this instance on account of the short turnaround.**
- 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."

- 4.1.8 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.
- 4.1.9 In this instance, the subject tree has the potential to pose significant constraints to development of the site and is in conflict with the need to provide safe egress and access. It will though be noted, for the reasons outlined in Paragraph 4.2.4 below, these constraints are tempered by the inappropriateness of the position the tree grows in.

4.2 Secondary Constraints

4.2.1 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.

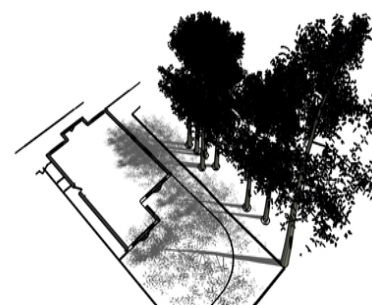


Figure 3 –
Generic Shading Constraints

4.2.2 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.

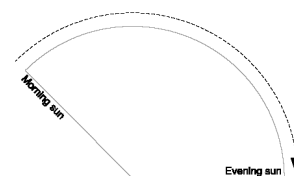


Figure 4 – Shading Arc

4.2.3 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.

4.2.4 Even if it were retained, the subject tree provides a variety of secondary constraints, including shading, organic deposition and the need to maintain crown clearance. The significance of these constraints will vary depending on the location and proximity to the proposed redevelopment 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.

INSERT TABLE HERE – PREVIOUSLY SECTION 5

Table 1: Arboricultural Impact Assessment

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

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Show All Trees

Ref: CLA_10CLC_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	Hornbeam	Felled to Facilitate Development	m ² N/A %	Early Mature	Normal	N/A	N/A	Medium	Replacement tree

6.0 ARBORICULTURAL IMPLICATIONS

6.1 Rating of Primary Impacts

- 6.1.1 The principal impact in the current proposals comprises the removal of the subject tree. Whilst this tree does, strictly speaking, comprise a significant constraint to development, it could quite clearly not be described as being 'the right tree in the right place' the London Plan espouses. Even if it were retained, the tree will need regular pruning until it is removed with all the use of fossil fuels that will entail as well as impede access ever more as its trunk increases in diameter.
- 6.1.2 The retention of the tree via the creation of a new path has been explored but as Figure 5 below shows, this is not feasible in terms of the width of path that could be accommodated, its geometry and issues with levels a no-dig construction method would result in. This would also necessitate the construction of a new pier as well as interrupting the symmetry of the existing boundary treatments.
- 6.1.3 We would also note that the tree is somewhat incongruous in its setting, the character of the surrounding streets is mostly hedges in the front gardens to the east (Chalcot Road) and trees in the street (Chalcot Square) and Chalcot Square Gardens to north east. Where there is / are trees / front garden(s) to the west, the species choice is typically cherry.

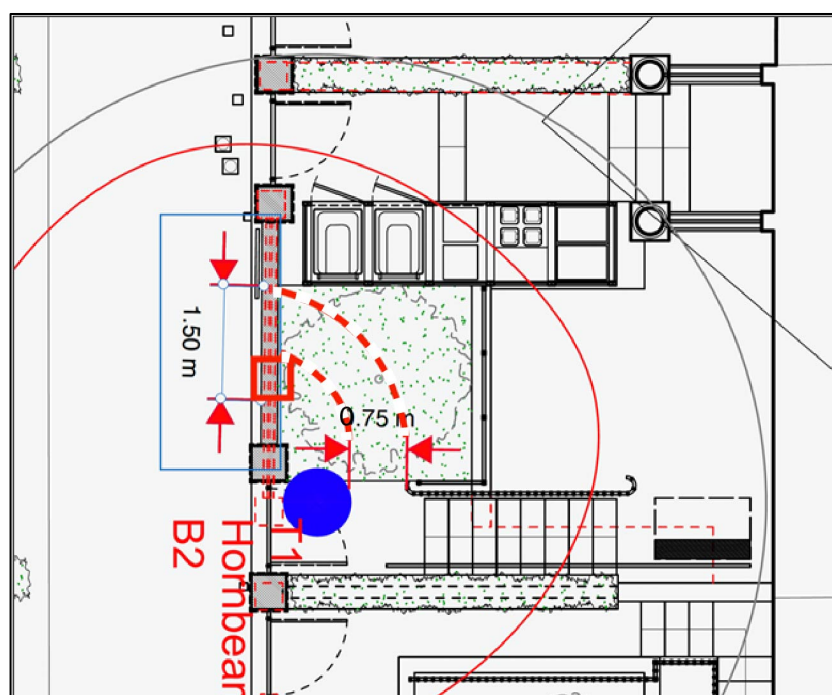


Figure 5: Mock up of potential alternative access route

6.2 Rating of Secondary Impacts

6.2.1 The removal of the tree and replacement with a species more suited to the front garden will reduce secondary impacts.

6.3 Mitigation of Impacts

6.3.1 The replacement of the subject tree with a species suited to the front garden will offer considerable enhancement. A Replacement tree will have the advantage of being specifically selected for the proposed site, healthy and fit-for-purpose. Design can provide for a diverse range of native and ornamental species that will compliment rather than conflict with the proposals, so providing a more sustainable long-term resource for the future. A selection of tree species and cultivars for open and constricted sites is provided in Appendix 3 with a broad-leaved cockspur thorn initially proposed.

7.0 CONCLUSION

- 7.1 The removal of the subject tree would be assessed as being a moderate impact over the short term, but for the inappropriateness of the tree for its position and as a result of it not being in keeping with the character of the area.
- 7.2 A replacement tree and additional planting will provide for a more sustainable relationship between trees and the built infrastructure.
- 7.2 Therefore, the proposals comply with Policies G1 and G7 of the London Plan 2021 and Policies A3, D1, and D2 of the Camden Local Plan (adopted 3rd July 2017). Thus, with suitable mitigation and supervision the scheme is recommended to planning.

8.0 RECOMMENDATIONS

8.1 Specific Recommendations

- | | |
|-------|---|
| 8.1.1 | Recommendations for works required to facilitate development are found in Appendix 2 and a selection of columnar tree species cultivars for constricted sites provided in Appendix 3. Any tree removals recommended within this report should only be carried out with local authority consent. |
| 8.1.2 | Replace felled tree T1 with native ornamental nursery stock under current best practice; i.e. conforming to and planted in accordance with the following: |

- | |
|--|
| <ul style="list-style-type: none"> • BS8545: 2014 Code of Practice for Trees from Nursery to Landscape • BS 3936-1: 1992 Nursery stock. Specification for trees and shrubs; and • BS 5236:1975 Cultivation and Planting of Trees in the Advanced Nursery Stock Category. • All replacement stock should be planted and maintained as detailed in BS 4428:1989 (Section 7): Recommendations for General Landscape Operations. |
|--|

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.
- 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.

9.0 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
Reserved matters/ planning conditions	Arboricultural impact assessment	
	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

Hornbeam, Common : *Carpinus betulus*

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.



Site: 10 Chalcot Square
Date: 10/11/21

Appendix 1

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Surveyor(s): Ross Gamblin
Ref: CLA_10CLC_AIA

BS5837 Tree Constraints Survey Schedule

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	Hornbeam	11	4444	3.0	505	Early Mature	6.1	Normal	Good	B	1	20+	Historically reduced Structural roots lifting paving Otherwise a tree of good form and condition (TPO)

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: 10 Chalcot Square

Date: 10/11/21

Appendix 2

Surveyor(s): Ross Gamblin

Ref: CLA_10CLC_AIA

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	Hornbeam	B	11	3.0	4444	Fell	Historically reduced Structural roots lifting paving Otherwise a tree of good form and condition (TPO) To facilitate development

APPENDIX 3: TREE SELECTION FOR URBAN LOCATIONS

Table A4.1: Small Ornamental Tree Species

Common Name	Species	(Columnar Form for discrete usage)
Hawthorn	<i>Crataegus monogyna</i>	Stricta
Cockspur	<i>Crataegus prunifolia</i>	Splendens
Cherry	<i>Prunus x hillieri</i>	Spire
Bird cherry	<i>Prunus padus</i>	Albertii
Rowan / Mountain ash	<i>Sorbus aucuparia</i>	Cardinal Royal
Swedish whitebeam	<i>Sorbus intermedia</i>	Brouwers
B. whitebeam	<i>Sorbus x thuringiaca</i>	Fastigiata

Table A4.2: Medium Specimen Tree Species

Common Name	Species	(Columnar Form for discrete usage)
Chinese red bark birch	<i>Betula albosinensis</i>	Fascination
Mongolian lime	<i>Tilia mongolica</i>	
Hornbeam	<i>Carpinus betulus</i>	Fastigiata Frans Fontaine
Turkish hazel	<i>Corylus colurna</i>	
Maidenhair tree	<i>Ginkgo biloba</i>	
Pride of India	<i>Koelreuteria paniculata</i>	Fastigiata
European larch	<i>Larix decidua</i>	Sheerwater Seedling
Tulip tree	<i>Liriodendron tulipifera</i>	Fastigiata

Table A4.3: Larger Specimen Tree Species

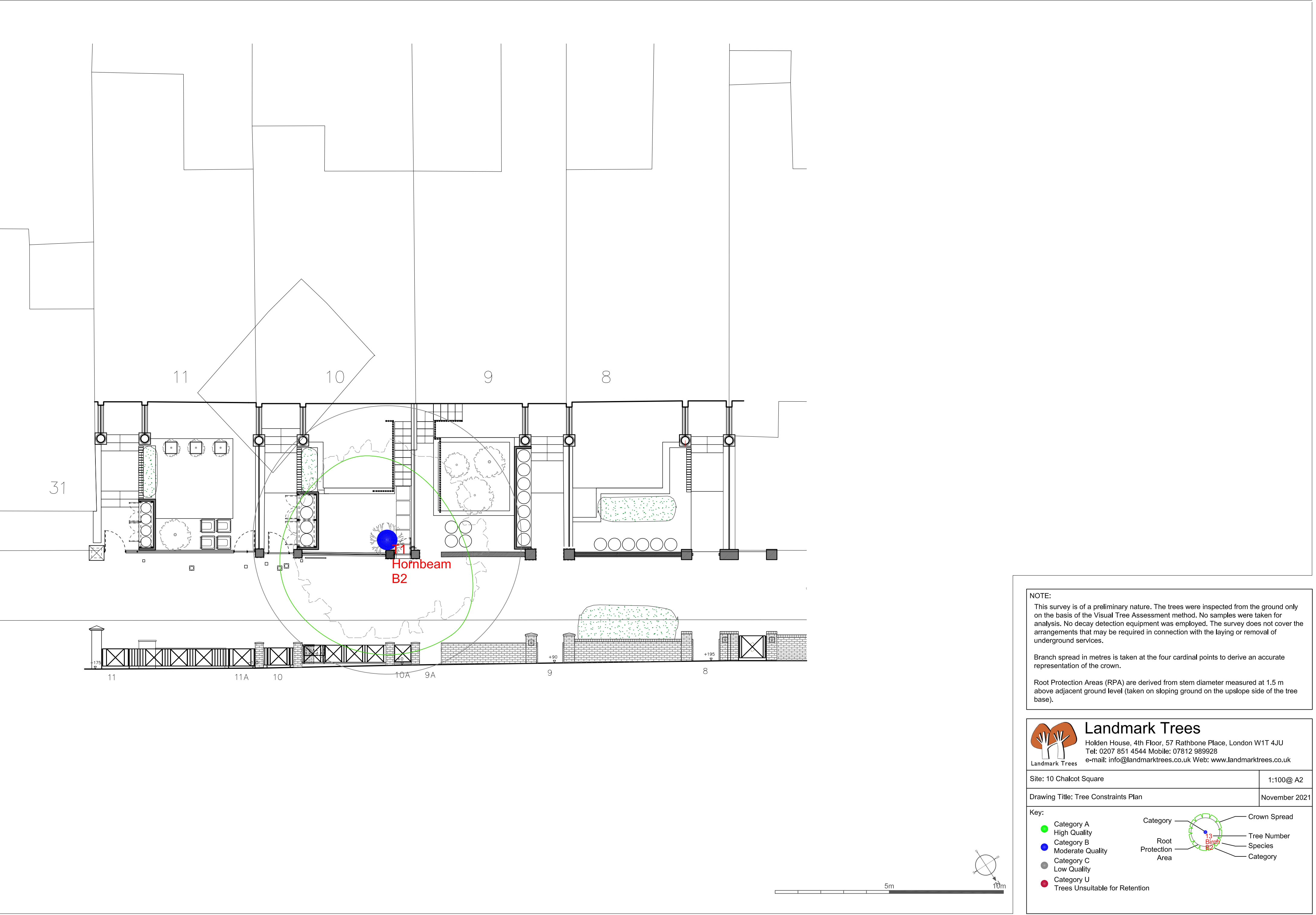
Common Name	Species	(Columnar Form for discrete usage)
English oak	<i>Quercus robur</i>	f. Koster
American elm	<i>Ulmus americana</i> Princeton	
Cedar of Lebanon	<i>Cedrus libani</i>	



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).

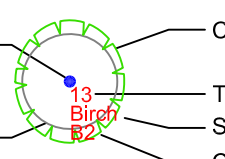


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Site: 10 Chalcot Square	1:100@ A2
Drawing Title: Tree Constraints Plan	November 2021

Key:

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



- Crown Spread
- Tree Number
- Species
- Category
- Root Protection Area

PLAN 2**ARBORICULTURAL IMPACT ASSESSMENT PLAN (S)**

- i. Ground Floor

