



# Pre-development Arboricultural Survey and Report

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Land at 17 Sudbrook Gardens, Richmond TW10 7DD

A report to: Sophie bates Architects on behalf of Tamsin Loke

Date: 30<sup>th</sup> September 2024

Report No: WAS 226/2024 REV A

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## Report Verification

This study has been undertaken in accordance with British Standard 5837:2012 "Trees in relation to design, demolition and construction - Recommendations".

## Disclaimer

The contents of this report are the responsibility of Wassells Arboricultural Services Ltd. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Wassells Arboricultural Services Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

## Validity of Data

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified and experienced arboriculturist to assess any changes to the trees and groups on site and to inform a review of the conclusions and recommendations made.

It should be noted that trees are dynamic living organisms that are subject to natural changes as they age or are influenced by changes in their environment. As such, following any significant meteorological event or changes in the growing environment of the trees they should be reassessed by a suitably qualified and experienced arboriculturist.

## Introduction and Scope of Report

This document has been produced to provide a detailed survey of trees that are within, surrounding and near to the land described within the report and that may be impacted by the proposed development.

The scope of this report follows the recommendations and guidance described within **BS 5837: 2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*** which sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.

The report will assess the quality, amenity and landscape value of all surveyed trees as described by the tree category system within BS 5837 (see section below).

The protection of all trees to be retained and where they are likely to be affected by the proposed development construction activities shall need to be described in a site specific AMS once final plan is agreed and consent is given.

The report will also indicate, where necessary, the likely impact the proposals may have on those trees in the future.

The report will also recommend any required tree works to enable access and also to mitigate potential damage from construction activity and for the future well-being of the trees concerned.

This is intended to support the planning application for development of this site.

The tree survey for the site can be found in Addendum 3 below

### Abbreviations:

RPA = root protection area

CEZ = construction exclusion zone

CWA = construction working area (including materials storage)

AMS = arboricultural method statement

AS = Arboricultural supervision

TPO = Tree Preservation Order

CA = Conservation Area

**Office:** 32B Elizabeth Avenue, Islington London N1 3BJ

**Tel:** 07860 445380

**Email:** [office@wassells.co.uk](mailto:office@wassells.co.uk)

[www.wassells.co.uk](http://www.wassells.co.uk)

## Arboricultural Impact Assessment

### Proximity of Proposed Development to existing Trees

The proposed development of the site is for a large greenhouse and adjoining patio seating/covered area to run adjacent to the high brick wall along the rear of the garden and as per option 2 shown on the existing and proposed plans of Sophie Bates Architects.

**The trees within the curtilage of the rear garden and nearby in adjacent properties, can be seen on the tree survey plan in addendum 4 and should be read in conjunction with the BS 5837 data in addendum 3.**

The proposed brick gable to the covered area nearest tree T001 does fall within the typical RPA of that tree and is around 1 metre away from the boundary wall. The extent of incursion is minimal and is unlikely to impact the tree. The brick wall footings will have restricted root growth in that direction and there is also past evidence of a filled in swimming pool within that zone, which would have also restricted any root growth in the past. The preferred footings for the wall are strip a foundation around 1 metre deep. *\*final proposed elevations for the greenhouse can be seen in addendum 4*

In conclusion the Indian Bean tree T001 will not be impacted by the proposed development. Some crown pruning of the overhang, to enable the wall to be built, will be required and this is recommended in the survey data on page 16.

No other trees in this part of the garden and nearby (T002 and T003) will be impacted. The nearby paving shown as proposed should have a sub-base of maximum depth 150mm or surface mounted if possible.

Recommendations on maintenance and protection can be found on the BS 5837 data table in addendum 5.

## Tree Protection Measures

- Informatives on tree protection measures are described in addendum 1 and 2 below
- A site-specific Arboricultural method statement (AMS) and Tree Protection Plan shall be required once a decision is reached and is normally conditioned as part of that. This needs to be done in conjunction with the Construction Management Plan in order to reflect the final plans and the demolition and construction phasing of the project in order to properly protect retained trees

## Arboricultural Supervision (AS)

- AS shall be required during work within and adjacent to the RPA of retained trees. It must be undertaken at regular intervals with a written record of the meetings maintained with a suitable photographic record in support.
- The AS must include a pre-construction commencement site visit, to be arranged by the Site Manager under instruction from Architects, and thereafter at specific events that affect the retained trees on site to enable sign-off by the AS. These are typically as follows:
  1. Erection of tree protection fencing
  2. Installation of ground protection to retained trees whose RPA are affected by the CWA.
  3. Start of demolition works on site.
  4. Start of Excavation/piling of foundations within the RPA of retained trees.
  5. Tree pruning requirements to prevent crown damage from construction activity.
  6. Start of Excavation/installation of paths, roads and car parking within RPA of retained trees
  7. Installation of underground services within the RPA of retained trees.
  8. Tree condition survey on completion of construction work

## Tree Grading Categories

Ref: Grading Category as per BS 5837:2012 Section 4.5 Table 1 & Table 2

Tree Survey Schedule in Addendum3 below for description of trees categorized.

**\*\*The grading categories are based on the following criteria:**

A= those trees of high quality and value suitable for retention for longer than 10years and worthy of being a material constraint to development

B= those trees of moderate quality and value suitable for retention for longer than 10years and worthy of being a material constraint to development

C= those trees of low quality and not worthy of being a material constraint to development

U=trees of such a condition that they cannot realistically be retained as living trees in the context of the current land use

NG = not graded. Those trees not considered to be in any of the above categories

**\*\*Acknowledged source: Barrell Tree Consultancy – [www.TreeAZ.com](http://www.TreeAZ.com)**

Categories A, B and C have further sub-categories (not qualified in BS and not utilized in this report) with regards to the reasons for tree retention as follows:

- 1: Mainly arboricultural qualities.
- 2: Mainly landscape qualities.
- 3: Mainly cultural values, including conservation.

### Trees categorized within this report:

- 1 Category A trees = none
- 2 Category B trees = T001, T008
- 3 Category C trees = T002 to T007 and G002
- 4 Category U trees = G001
- 5 NG = none

Office: 32B Elizabeth Avenue, Islington London N1 3BJ

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[www.wassells.co.uk](http://www.wassells.co.uk)

## Age Categories and Distribution

Those trees assessed as being young (Y) in age can generally be considered to have significant growth potential. Whilst these specimens are not likely to make a substantial contribution to the landscape character of the site at present they will, if retained, provide succession for the eventual removal of mature or over-mature trees because of declining physiological or structural condition.

Semi mature trees (SM) will generally make a significant contribution to the landscape character and appearance of the site and their retention will provide more immediate succession. These trees will also have significant growth potential.

Mature trees (M) are not considered to have significant future growth potential and have generally reached their maximum expected size for the location. These trees will generally make the highest contribution to the landscape contribution of the site. However, a tree stock over dominated by mature trees will require careful management to ensure that continuation of canopy cover can be achieved.

Over-mature trees (OM) do not have the potential to increase in size and may in fact reduce in size as their crowns begin to break up. These trees will often make a significant contribution to the landscape character of the site and are likely to have ecological value. However, the retention of these trees within new development must be carefully planned as they are approaching the end of their useful life expectancy, and they will often have structural defects. Where over-mature trees are to be retained in new development it is essential that access is available for their eventual removal.

Veteran trees (V) are those that show features of biological, cultural or aesthetic value that are characteristic of an individual surviving beyond the typical age range for the species. These trees have negligible potential to increase in size. Veteran trees are usually of a high ecological value, and they will require sensitive management where they are to be retained in new development. As such it is again essential that they are in areas where access is available to undertake management operations and where there is a reduced risk of harm occurring from failure of the trees.



## References

1. BS 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations
2. Barrell Tree Consultancy – BS5837 – Advanced Tree Assessment for Planning
3. BS3998:2010 Tree Work – Recommendations
4. NJUG Volume 4 Issue2 2007 – Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.
5. NHBC Standards – Section 4.2 Building Near Trees
6. British Geological Survey – London & the Thames Valley
7. Principles of Tree Hazard Assessment – Lonsdale 2001
8. Diagnosis of Ill Health in Trees – Stouts & Winter 2004
9. Tree Roots in the Built Environment: Chapter 9 – Roberts, Jackson & Smith 2006
10. The Body Language of Trees – Mattheck 2015
11. Tree Survey Plan – Addendum 5
12. Existing and proposed plans – Sophie Bates Architects

## Declaration

This Tree Survey, Impact Assessment and provisional tree protection measures have been written and checked by Richard Wassell of Wassells Arboricultural Services Ltd. and are provided without prejudice as an objective and professional assessment of the trees described.

Signed: *R.J. Wassell*      Date: *30.09.MMXIV*

**Richard Wassell. Director**

**CHort MCIHort MArborA NDarb (RFS) Kew Diploma NEBOSHlevel3**



**Office:** 32B Elizabeth Avenue, Islington London N1 3BJ  
**Tel:** 07860 445380  
**Email:** office@wassells.co.uk  
[www.wassells.co.uk](http://www.wassells.co.uk)

## Addendum 1 – Tree Protection Informatives

### Protecting Root Zone of Trees - BS 5837:2012 section 6.2 Figs. 2 & 3

#### The Root Protection Area (RPA)

This is the area surrounding a tree that is deemed to contain enough roots and rooting volume to maintain the tree's viability in the future. The root system is typically concentrated in the uppermost 600 – 1200mm of the soil and is not necessarily symmetrical around the tree, being dependent on several factors such as water, nutrients, oxygen, soil penetrability and physical obstructions such as existing foundations or changes in level (terracing).

The RPA is a design layout tool that is deemed to be a minimum area around a tree where the protection of roots and soil structure are treated as a priority. This area is envisaged as and portrayed with a circle around each tree but where there appears to be restrictions to root growth the circle is reshaped to reflect more accurately the likely distribution of the rooting area of the tree concerned.

#### Key Points

1. AVOID building works within the RPA if possible but if not then carefully consider the following: where the RPA is likely to be severely affected because of site design constraints then felling and planting replacement(s) trees in a more suitable location on the site will need to be considered.
2. Where possible do not use strip foundations within the RPA, if necessary, consider using a trenching saw or excavate by hand to avoid 'shatter damage' to the root system.
3. Consider using piling techniques for foundations @ maximum 350 mm diameter with ground beams on or above the surface of the root zone.
4. Unless unavoidable, do not exceed entering the root zone by more than one fifth of RPA radius.
5. Do not trench tangentially across the root zone for footings and services unless it cannot be avoided.
6. Consider 'no dig' techniques for services installation, with radial service lines being preferable to tangential across the root zone. Where this is undertaken then boring must be carried out below 600mm deep.
7. Any hard surfacing, paths and roads need to have the same considerations for the RPA and as in the above points. Where possible paths and hard surfacing (patios etc.) need to be surface constructed (cellular) and semi-porous to allow water penetration and gaseous exchange into the root system of trees.

#### Excavation within Root Protection Area of trees

Where trees are to be retained then any proposed foundation, underground services work and hard surfacing such as roads/paths falling within the RPA of trees that are to be retained shall

**Office:** 32B Elizabeth Avenue, Islington London N1 3BJ

**Tel:** 07860 445380

**Email:** office@wassells.co.uk

[www.wassells.co.uk](http://www.wassells.co.uk)

be kept as far away from tree stems as possible (SEE NOTE 1 ABOVE). Where any such works are necessary within the RPA there will be a requirement to dig carefully by hand and ensure any roots encountered of maximum 25mm in diameter shall be exposed and correctly pruned back by a competent Arborist. Where larger roots are encountered of above 25mm in diameter then advice from the Arboricultural Supervisor (AS) for the site must be sought prior to any work being undertaken.

**Any roots exposed/ pruned back as part of the above operation shall NOT be left exposed to drying out. All roots exposed/pruned shall be either covered with damp Hessian sacking prior to backfill or backfilled/covered immediately with a suitable open and free draining compost/loam.**

### Site Hoarding

Site hoarding shall be no closer than 1.5 metres away from the stem of retained trees and consist of 20mm plywood sheets supported by minimum 100mm square posts and 100 x 50mm rails with posts at 2.5 metre centres.

Post holes for site hoarding that are required within the RPA of nearby trees shall be dug by hand and are to be a maximum of 300 x 300mm and 450mm deep

### Ground Protection System Specification

- Level area of RPA concerned by blinding with sharp sand at maximum depth of 50mm.
- Lay geo-textile membrane such as 'Terram' to cover area concerned.
- Cover geo-textile with maximum of 100mm MOT Type 1 sub-base
- Retain MOT type 1 with edge restraint such as 30 x 100mm edging board pegged every 2 metres to prevent migration of the sub-base

### Acts of parliament

Wildlife and Countryside Act 1981, the Countryside and Rights of Way Act 2000, the Conservation (Natural Habitats etc.) Regulations 1994 or any Acts offering protection to wildlife and trees/hedges (TPO, TCA)

All birds (except those listed in schedule 2 of the Wildlife and Countryside Act 1981), their nests and eggs are protected by law. It is an offence to intentionally or recklessly kill, injure or take any wild bird, or damage, destroy or intentionally disturb the nest of any wild bird whilst it is in use or being built. For this reason, tree work should not be undertaken during the nesting season (broadly March to August) unless a survey for nesting birds confirms their absence. Should you require any further information on nesting birds, please contact Natural England. You are advised that trees have the potential to support roosting bats. Bats and their roosts are

legally protected. It is an offence to disturb or harm a bat, or damage, destroy or obstruct any

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**Email:** office@wassells.co.uk

[www.wassells.co.uk](http://www.wassells.co.uk)

place used by bats for shelter, whether they are present or not. Trees should be inspected before any works commence and if the presence of bats is suspected works must cease and advice sought from The Bat Conservation Trust.

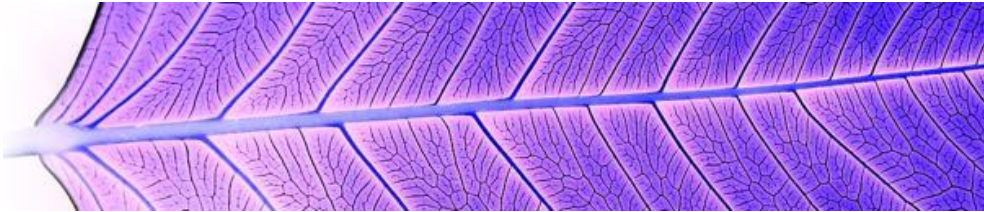
## Addendum 2 – Tree Works

### Schedule of Tree Works

1. All proposed tree removal and tree pruning works are described in the management recommendations of the ***BS 5837 Report below***
  
2. Tree work to be carried out to the following standards and guidelines:
  - BS 3998:2010 Recommendations for Tree Work
  
  - Tree pruning cuts will be conducted using the ‘Natural Target Pruning’ technique as defined by: *BS 3998:2010 section 7.2.5 and Fig. 2 The Pruning of Trees, Shrubs and Conifers: George E. Brown & Tony Kirkham – 2<sup>nd</sup> edition revised & enlarged 2004 and Section 3.1.27 of The Arboricultural Association Specification for Tree Works June 2008.*
  
  - Crown clean involves removal of dead, diseased & dying wood from tree crown, thinning of overcrowded crown, and removal of Ivy and all epicormic growth within crown including stem & basal epicormic growth

## Addendum 3 – Tree Survey Data

# BS5837 Survey Data



Ref.	Species	Measurements	General Observations	Category	Recommendations
G001	Cherry x5 (Prunus sp. 'Cherry')	5 stems, avg.(mm): 200 Life Stage: Young		U  RPA No RPA due to Retention Category of U.	Pre construction: Selective removal and thinning as part of new landscaping scheme.  During construction: No action required.  Post construction: No action required.
G002	Mixed species (Mixed species) Cornelian cherry (Cornus mas) Hazel (Corylus avellana) Viburnum (Viburnum sp.)	Height (m): 5 4 stems Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Retain for incorporating in to future landscaping.  Additional Comments: This group does not form a constraint to the redevelopment of the site.	C2  RPA Area: 72 sq m.	Pre construction: No action required.  During construction: No action required.  Post construction: No action required.

Ref.	Species	Measurements	General Observations	Category	Recommendations
T001	Indian bean tree ( <i>Catalpa bignonioides</i> )	Height (m): 10 Stem Diam(mm): 400 Spread (m): 4N, 4E, 4S, 4W Crown Clearance (m): 3 Life Stage: Early Mature Rem. Contrib.: 10+ Years	Good Physiological and Structural condition.  Additional Comments: Minor potential impact from proposed glasshouse and building	B2  RPA Radius: 4.8m. Area: 72 sq m.	Pre construction: Crown lift to 4.5 metres on site side. Crown reduction by up to 2 metres on site side.  During construction: Excavation below 300mm within the typical RPA to be carried out by hand to enable any roots over 50mm to be properly severed.  Post construction: No action required.
T002	English yew ( <i>Taxus baccata</i> )	Height (m): 9 Stem Diam(mm): 200 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 3 Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Good overall Physiological and Structural condition.  Additional Comments: This tree does not form a constraint to the redevelopment of the site.	C2  RPA Radius: 2.4m. Area: 18 sq m.	Pre construction: No action required.  During construction: No action required.  Post construction: No action required.
T003	Griselinia ( <i>Griselinia sp.</i> )	Height (m): 6 2 stems, avg.(mm): 200 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 2 Lowest Branch (m): 1 Life Stage: Early Mature Rem. Contrib.: 10+ Years	Inclusive bark.  Additional Comments: This tree will not have to be removed to facilitate a proposed future development. The surfacing and levels in the RPA should not be altered as long as the tree is being retained.	C2  RPA Radius: 3.4m. Area: 36 sq m.	Pre construction: Crown reduction by up to 1.5 metres  During construction: Protect trees with protective barriers - as shown on plans. Ground protection for construction traffic ...  Post construction: No action required.



Ref.	Species	Measurements	General Observations	Category	Recommendations
T004	Tulip magnolia (Magnolia soulangeana)	Height (m): 9 Stem Diam(mm): 400 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 3 Life Stage: Early Mature Rem. Contrib.: 10+ Years	Good overall Physiological and Structural condition.  Additional Comments: This tree will not have to be removed to facilitate a proposed future development. The surfacing and levels in the RPA should not be altered as long as the tree is being retained.	C2  RPA Radius: 4.8m. Area: 72 sq m.	Pre construction: No action required.  During construction: Protect trees with protective barriers - as shown on plans. Ground protection for construction traffic ...  Post construction: No action required.
T005	Common holly (Ilex aquifolium)	Height (m): 4 Stem Diam(mm): 350 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 1 Life Stage: Early Mature	Topped at 4 metres Close to boundary wall.  Additional Comments: This tree does not form a constraint to the redevelopment of the site.	C2  RPA Radius: 4.2m. Area: 55 sq m.	Pre construction: No action required.  During construction: No action required.  Post construction: No action required.
T006	Box elder maple (Acer negundo)	Height (m): 6 Stem Diam(mm): 350 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 4 Life Stage: Mature	Badly crown reduced. Very close to boundary wall. Very close to properties.  Additional Comments: This tree does not form a constraint to the redevelopment of the site. Root growth will have been restricted due to wall foundations and nearby sewer, which is circa 750mm deep.	C2  RPA Radius: 4.2m. Area: 55 sq m.	Pre construction: No action required.  During construction: No action required.  Post construction: No action required.
T007	Common ash (Fraxinus excelsior)	Height (m): 8 2 stems, avg.(mm): 200 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 3 Life Stage: Young Rem. Contrib.: 10+ Years	Co-dominant stems from base. Inclusive bark. THREATS - wires and next to wall. Stem/limb decay.  Additional Comments: This tree does merit retention due to co-dominant stems (inclusive bark at base) and growing from the base of the wall.	C2  RPA Radius: 3.4m. Area: 36 sq m.	Pre construction: Remove tree.  During construction: No action required.  Post construction: No action required.

Ref.	Species	Measurements	General Observations	Category	Recommendations
T008	Silver birch (Betula pendula)	Height (m): 12 Stem Diam(mm): 400 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 3 Life Stage: Mature Rem. Contrib.: 10+ Years	Good overall Physiological and Structural condition.  Additional Comments: This tree does not form a constraint to the redevelopment of the site.	B2  RPA Radius: 4.8m. Area: 72 sq m.	Pre construction: No action required.  During construction: No action required.  Post construction: No action required.

## Addendum 4 – Tree Survey Plan & Site Plans

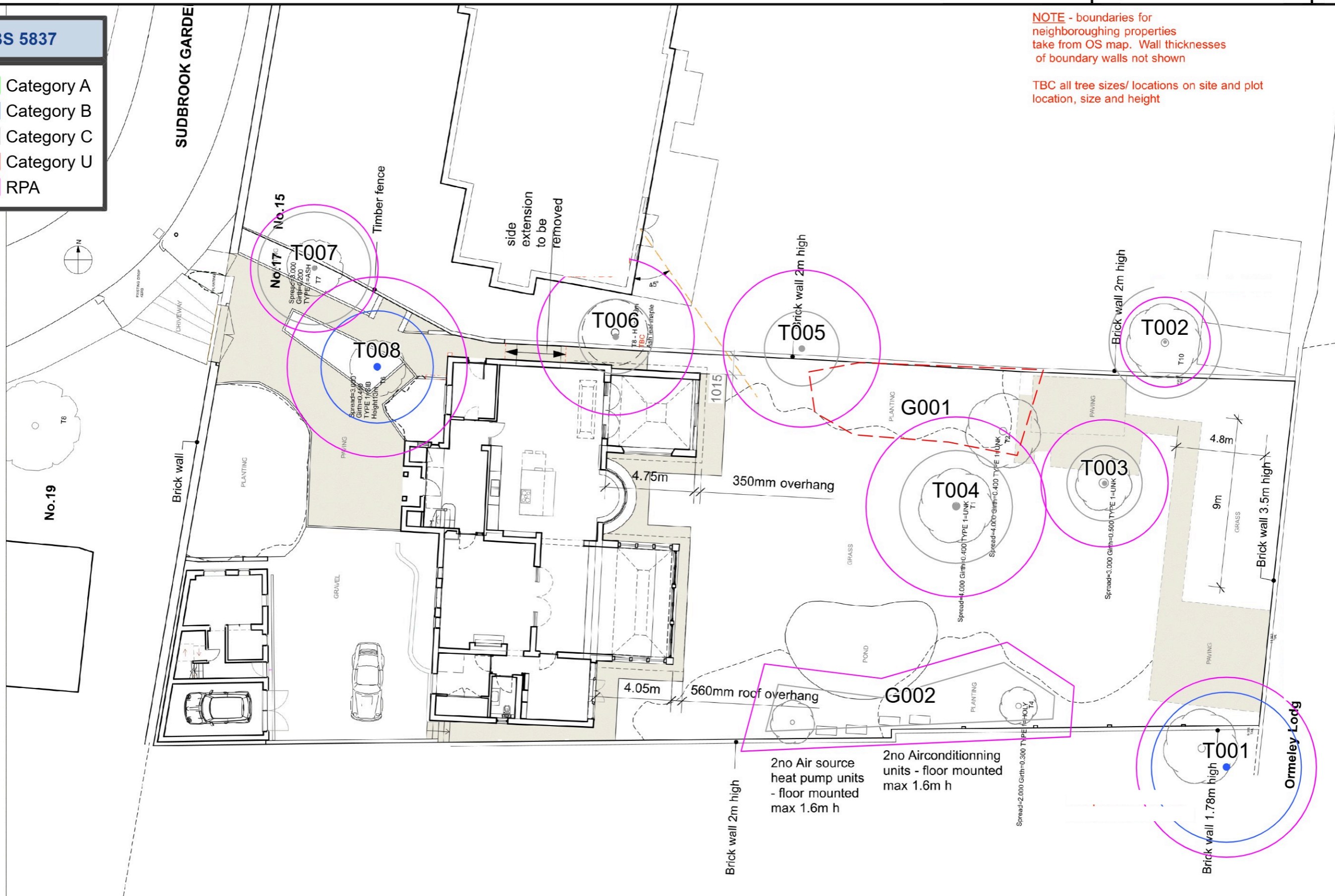


**BS 5837**

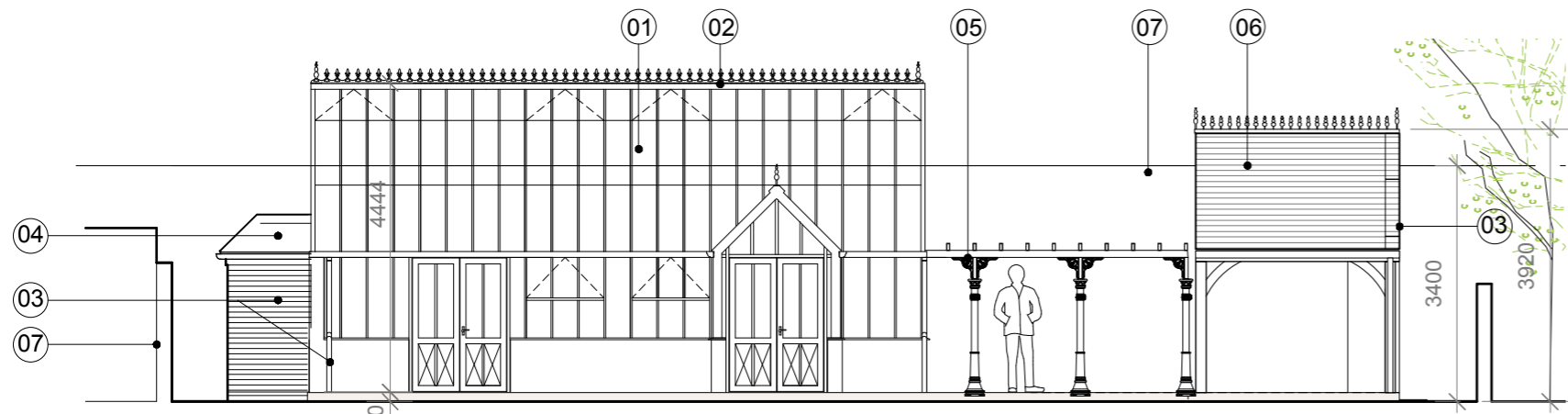
- Category A
- Category B
- Category C
- Category U
- RPA

**NOTE** - boundaries for neighboring properties take from OS map. Wall thicknesses of boundary walls not shown

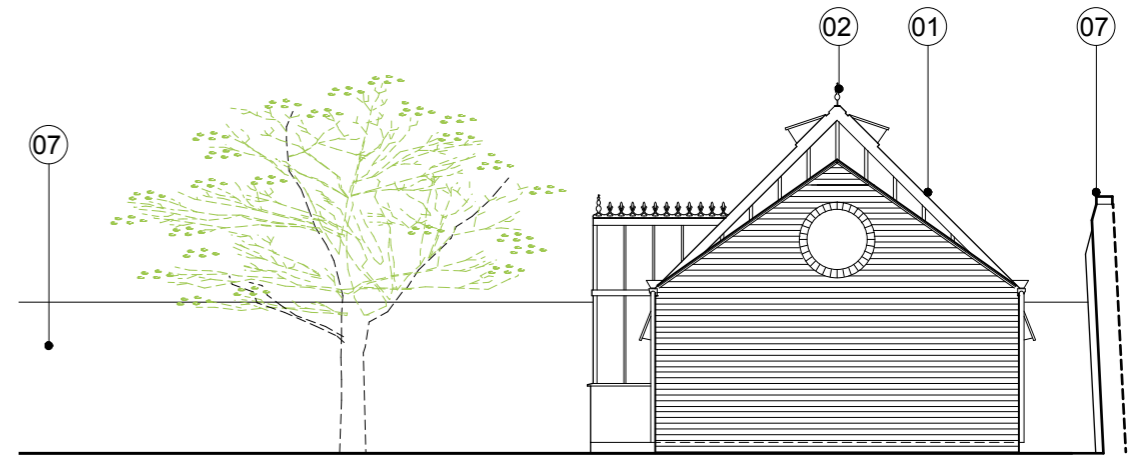
TBC all tree sizes/ locations on site and plot location, size and height



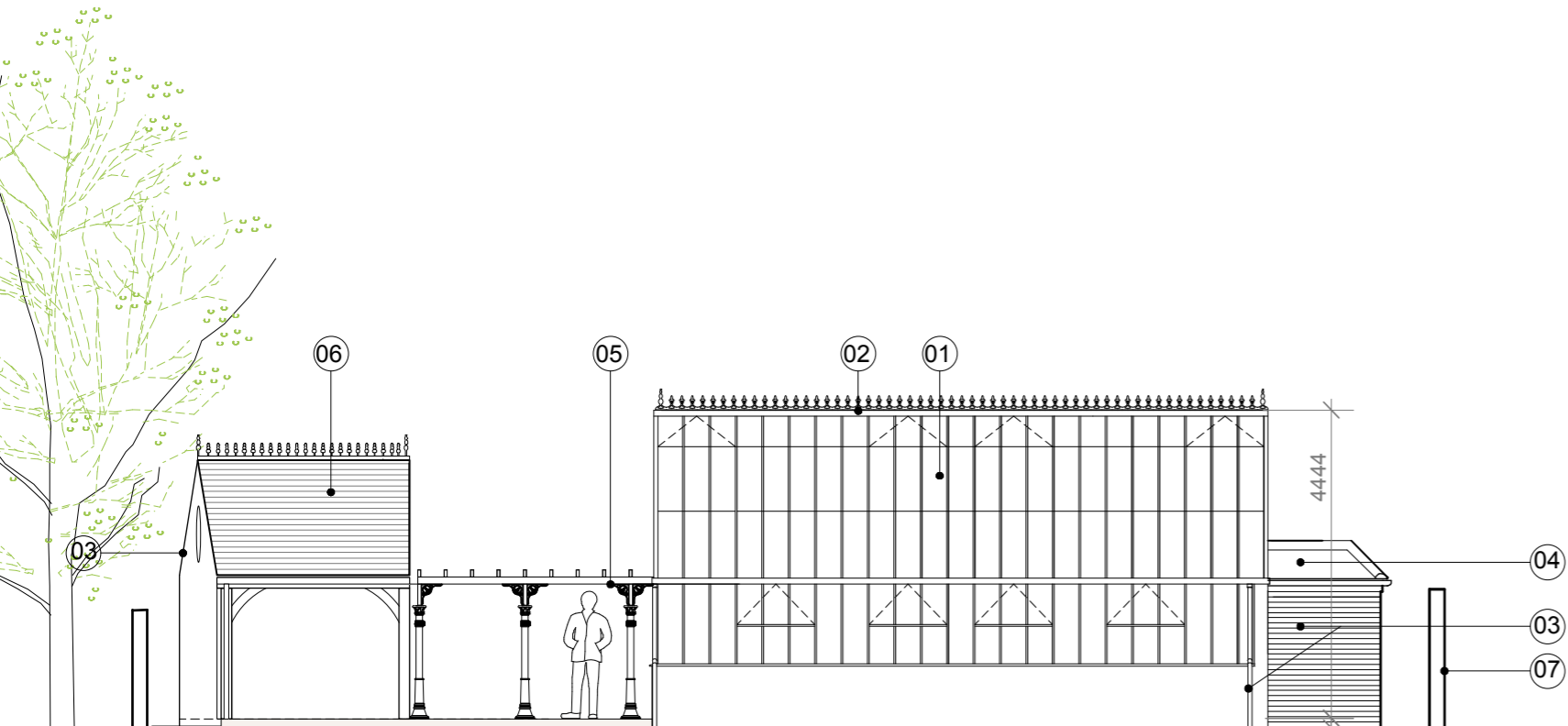




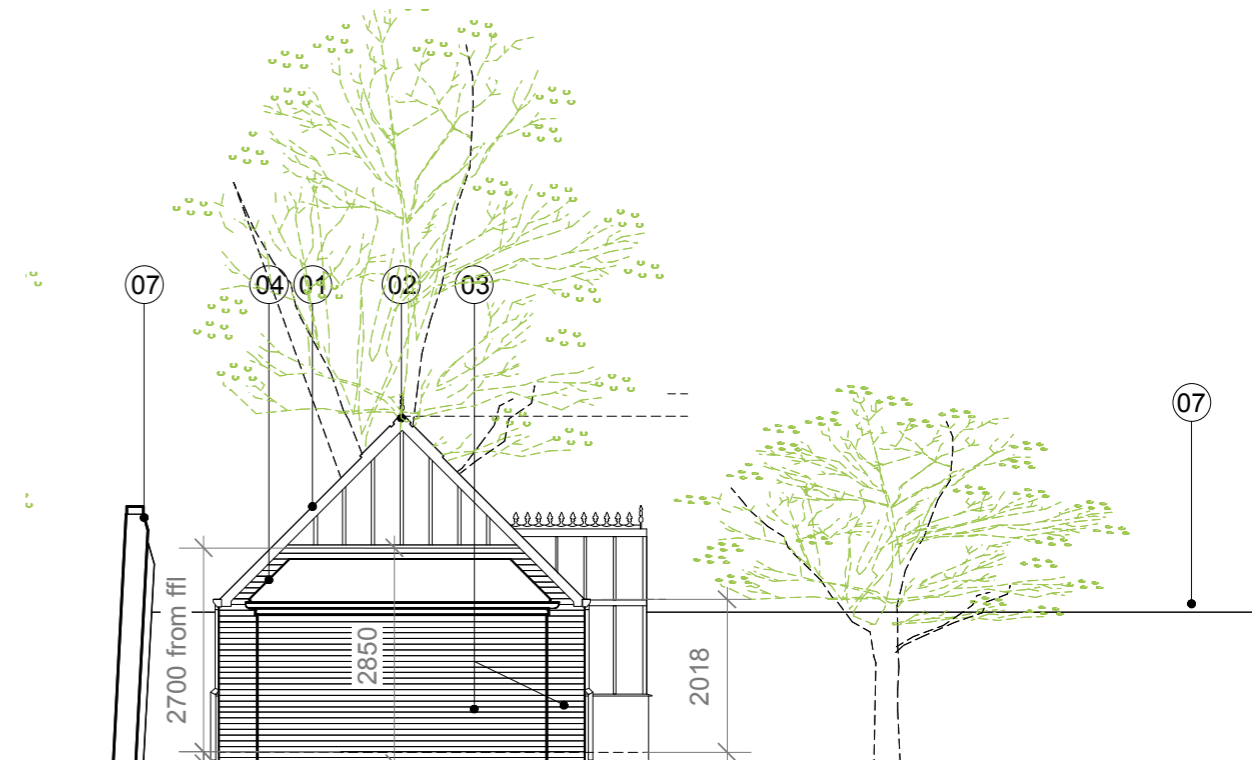
**PROPOSED FRONT WEST ELEVATION**



**PROPOSED SOUTH ELEVATION**



**PROPOSED REAR EAST ELEVATION**



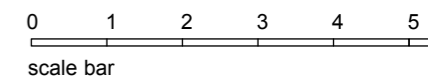
**PROPOSED NORTH ELEVATION**

1	Greenhouse - glass/ green/grey frame
2	Ridge cresting and finial to match framing
3	Reclaimed brick wall
4	Tiled pitched roof
5	Pergola with ornate columns to match greenhouse
6	Canopy with open front and back and side, with reclaimed slate tiles and oak columns
7	Brick boundary wall
8	Outbuilding no15

**UPDATE TO SUIT BLINDS AND TO HB DETAILS/ SIZES  
ADD TREE CANOPIES to plan**

**DIMS**

**DIMS ELEV SECTIONS**



**Tree location, canopy  
to be updated**

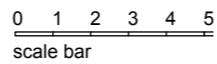
**27/09/24** Draft HB issue

<b>SOPHIE BATES ARCHITECTS</b>	SUSBROOK GARDENS			
	<b>GREENHOUSE ELEVATIONS - proposed</b>			
29 ST.GEORGES ROAD, KINGSTON, KT2 6DL T-07725 501683 E-SOPHIE@SOPHIEBATES.COM WWW.SOPHIEBATES.COM	job no	scale	drawing no	revision
	047	1:100	<b>GP-07</b>	



25/9/24 B -manhole added, greenhouse updated  
 2/9/24 DRAFT -fee proposal feedback Tree/Planning C  
 REV DATE AMENDMENT

1. Do not scale drawings. All dimensions to be checked on site. To be read in conjunction with all relevant architects services and engineers drawings. 2. Contractors, sub-contractors and suppliers to verify any critical dimensions on site prior to fabrication of any building element. Any discrepancies to be reported to the architect. 3. This drawing to be read in conjunction with all relevant specifications and consultants information and any discrepancies reported prior to installation.



<b>SOPHIE BATES ARCHITECTS</b> 29 ST.GEORGES ROAD, KINGSTON, KT2 6DL T-07725 501683 E-SOPHIE@SOPHIEBATES.COM WWW.SOPHIEBATES.COM		SUDBROOK GARDENS	
		PROPOSED BLOCK PLAN	
job no	scale	drawing no	revision
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## Addendum 5 – Picture Gallery











G002

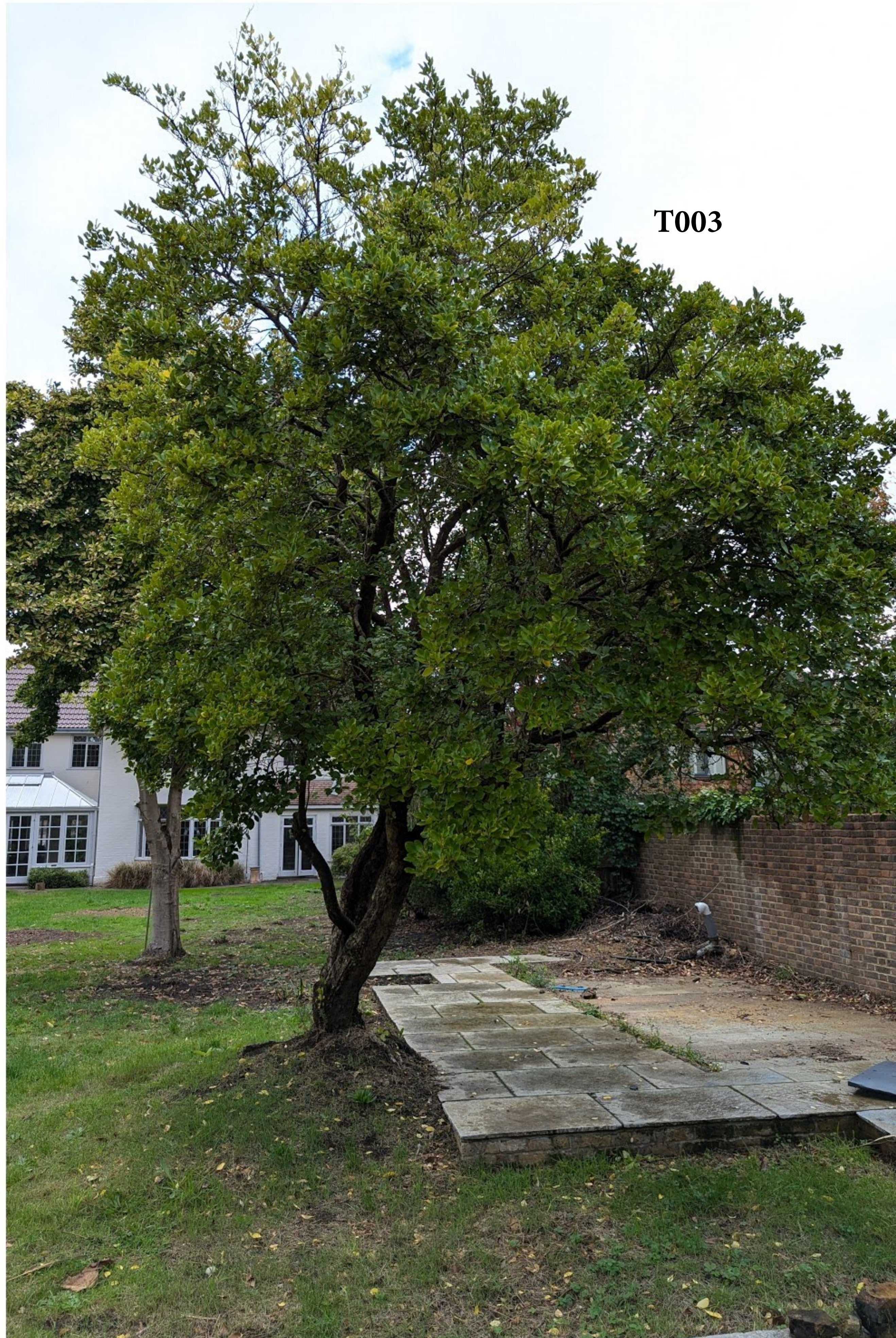


G001





T004



T003





T001



T002