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Site Specific Arboricultural Survey, Impact & Method Statement

Land at 2 Oakhill Avenue, Hampstead London NW3 7RE

Richard Wassell MIHort NDArb(RFS)Kew Diploma NEBOSHlevel3

25th October 2013

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Client

Mr. Abhay Ruparell, 2 Oakhill Avenue, Hampstead London NW3 7RE

Architects:

Studio B Architects, 53 Priory Road London NW6 3NE

Maneesha Sonawane Tel: 07961 315703 Email: maneesha_x@yahoo.co.uk

Scope of Report

This document has been produced to provide a detailed survey of trees within and surrounding the above site demise and that are nearby to the proposed planned 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 and describe the protection of all trees to be retained and where they are likely to be affected by the proposed development construction activities. The report will also indicate 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 in the future.

This report 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)

Arboricultural Impact Assessment

Proximity of Proposed Development to existing Trees

Ref: Addendum 1 -Table 1, Addendum 3 and Picture Gallery at end of report

All trees in or near the above site have been surveyed and that information is shown in **addendum 3 below.**

There are 6 trees nearby to the proposed development one of which is situated in the rear garden of number 2a but close to the boundary with number 2 and at a distance of approximately 1 metre.

Trees T1 to T3 will not be impacted by the proposals and shall be protected from construction creep into the garden by tree protection fencing.

Tree T5 is a self-set Sallow growing from the base of the boundary fence and plinth with number 4. This tree is growing at an angle from the base and towards the flank wall of number 2 – see picture gallery below. This tree is of no particular merit and because of the growing location and condition is considered to be not worthy of retention. The tree would also be within the footprint of the proposed basement on this side.

Tree T6 is an ornamental Holly that is not considered for categorizing under BS 5837 and is within the footprint of the basement extension to the rear.

Tree T4 is a Mimosa and situated within the garden of number 2a close to the boundary with number 2 (approx. 1 metre) and on the lower level beyond the terracing to the rear of both these properties.

This tree will not be affected by the proposed development provided that the existing ground level at the base of the steps from the patio terrace at the rear of number 2 is not lowered, that is there shall be no excavation within the RPA of this tree, which is 3 metres radius from the centre of the stem.

Due to the growing environment of this tree, which is close to the rear patio terrace (approx. 1.5 metres high)it is likely that the root zone for this tree will have preferentially grown away from this feature and into the garden behind. For this reason it is proposed to off-set the RPA by 20% into the garden behind and as allowed by BS5837 section 4.6. This will give an RPA radius in the direction of the proposed development of 2.4 metres instead of 3 metres.

Careful consideration will be required to protect tree T4 during the construction phase of the proposed project. – **see below in AMS**

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Arboricultural Method Statement

Ref: Addendum 1 & 2

This method statement shall be seen as provisional for planning purposes and subject to a detailed submission and construction plan once proposals are agreed and to conform to any specific planning conditions made.

Excavation within RPA of Retained Trees

Ref: Addendum 1

The proposed piling plan shows the outside edge of the piling line to be over 3 metres away from the tree T4 and thus it is unlikely that there will be any excavation within the ERPA of this tree. * See enlargement section B-B below

*** Please see addendum 1 section on Excavation within RPA of retained trees.**

Tree Protection Barriers & Construction Exclusion Zone

Tree protection barrier shall be erected across the rear of the garden at 2 metres away from the base of the existing steps prior to construction starting on site and as per figure 3 below.

This protection shall comprise the CEZ for the trees.

***Please see specification for tree protection barriers shown below**

Ground Protection of Existing Surfaces within Root Protection Area (RPA) of Nearby Trees

Ref: Addendum 1

The area of RPA for tree T4 and within the garden of number 2 shall be protected as per the specification below in addendum 1. This shall be effective from the start of constructing the new rear basement area in order to prevent compaction from construction activity in this zone.

Access Facilitation Pruning & Tree Works

Ref: Addendum 2

Please see schedule of tree works below.

Site Access and Construction Working Area (CWA)

Site access is to be off of Oakhill Avenue and the CWA shall be all areas outside of the CEZ as defined by the tree protection barrier.

Site Storage and Accommodation

These areas shall be outside of the construction exclusion zones for the retained trees and also includes the RPA area for tree T4

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Installation of Services

Arrangements for this element of the development of the site are unknown as at time of writing this report but are likely to remain as existing.

Changes to the service routes will be carefully considered using the AS below to advise on protection of nearby trees prior to commencement on site.

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 and photographs taken if required.

The AS must include a pre-construction commencement site visit, to be arranged by the Site Manager under instruction from Architects, and thereafter at intervals of not less than 3 weeks until completion of construction works or more regularly if found necessary by site requirements.

Conclusion

Provided the recommendations shown above and the methodology for protection of any retained trees are followed, there will not be an effect on the current or future condition of those trees that are retained as part of the proposed scheme.

Tree Grading Categories

Ref: Grading Category as per BS 5837:2012 Section 4.5 Table 1 & Table 2 – Tree quality assessment chart. Tree Survey Schedule in Addendum3 below for description of trees categorized

The grading categories are based on the following criteria:

A=high quality (1/2/3)
B=moderate quality (1/2/3)
C=low quality (1/2/3)
U=trees of such a condition that they cannot realistically be retained as living trees in the context of the current land use

1 = mainly arboricultural qualities
2 = mainly landscape qualities
3 = mainly cultural values, including conservation

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Trees categorized within this report:

1 Category A trees = none

2 Category B trees = T1, T2, T3 & T4

3 Category C trees = T1, T2, T3 & T4

4 Category U trees = None

Trees for removal on this site:

1 Trees = T5 & T6

References

1. BS 5837:2012 Trees in Relation to Design, Demolition and Construction - Recommendations
2. BS3998:2010 Tree Work – Recommendations
3. NJUG Volume 4 Issue2 2007 – Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.
4. NHBC Standards – Section 4.2 Building Near Trees
5. British Geological Survey – London & the Thames Valley
6. Principles of Tree Hazard Assessment – Lonsdale 2008
7. Diagnosis of Ill Health in Trees – Stouts & Winter 2004
8. Picture Gallery – at end of report
9. Tree Survey Plan – at end of report
10. Studio B Architects– Existing and proposed drawings
11. Studio B Architects– Design & Access Statement

Declaration

This Tree Survey and AMS 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: 25.10.MMXIII

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Addendum 1

Ref: BS 5837:2012 in Tables C.1 & D.1of annex C & D

Table 1 -Tree protection measurements

Tree Number As per tree survey plan & schedule	Stem Diameter @ 1.5 metres agl. Millimetres	Root Protection Area (RPA) - Radius *measured from centre of stem* Metres	Tree/Root Protection Area (RPA) Sq. Metres	Affect of building proposal on the total RPA
T1	450	5.4	92	Not affected
T2	2 x 225 3 x 175	5.1	81	Not affected
T3	175	2.1	14	Not affected
T4	250#	3	28	Not affected provided there is no excavation below existing ground level at base of steps in garden of number 2
T5	200	2.4	18	Within piling zone – proposed to remove
T6	75	0.9	3	Within piling zone – proposed to remove

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 sufficient roots and rooting volume to maintain the trees 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 dependant on a number of 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

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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 at all 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 absolutely 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 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.

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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

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Addendum 2

Ref: Addendum 3

Schedule of Tree Works

Trees and vegetation recommended for removal:

Tree No.	Species	Recommended Work	Comment/Reason
T5	Sallow	Fell	To enable proposed development to take place
T6	Holly	Fell	To enable proposed development to take place

Recommended work for trees being retained:

Tree No.	Species	Recommended Work	Comment/Reason
T1	Sycamore	Crown clean. Remove Ivy	To prevent future crown damage and die-back
T2	Sallow	Pollard at 4 metres and maintain as restricted form	To reduce shading in garden and to assist the development of the suppressed Yew tree .

Tree work to be carried out to the following standards and guidelines:

1. BS 3998:2010 Recommendations for Tree Work

2. Tree pruning cuts will be carried out 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 – 2nd edition revised & enlarged 2004 and Section 3.1.27 of The Arboricultural Association Specification for Tree Works June 2008.*
3. Crown clean involves removal of dead, diseased & dying wood from tree crown, thinning of overcrowded crown, and removal of all epicormic growth within crown including stem & basal epicormic growth.

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Addendum 3 - Schedule of Tree Survey Information – BS5837:2012 section 4.4

SITE: 2 Oakhill Avenue, Hampstead London NW3 7RE DATE: 15th October 2013

Tree Number	**Species**	**Diameter** mm	**Height** metres	**Crown Spread** metres	**Age Class**	**Grading Category**	**Estimated Future Lifespan**	**Structure**	**Physiology, Condition & other factors**	**Management recommendation**
T1	Sycamore	450	18	N =5 S = 5 E = 5 W =5	M	B2	>40	M	Twin stemmed from 4 metres and with stem Ivy clad to top.	CC and remove Ivy
T2	Sallow	2 x 225 3 x 175	10	N =5 S = 3 E = 4 W =3	M	B2	20-40	M	Multi-stemmed specimen that is heavily shading the garden and suppressing the nearby Yew tree.	Pollard at 4 metres and maintain as reduced form every 3 to 5 years
T3	Yew	175	5	N =3 S = 3 E = 3 W =3	Y	B2	>40	G	Young tree that will develop into a good specimen with correct management	N
T4	Mimosa	250#	10	N =3 S = 3 E = 3 W =3	SM	B1	20-40	M	Located close to boundary in garden of 2a and at same ground level as the garden of number 2. Previously 'topped' at and leaning slightly to NE	N
T5	Sallow	200	9	N =4 S = 2 E = 3 W =2	SM	C1	10-20	M/P	Self set tree growing from base of boundary fence with number 4. Leaning towards the flank wall of number 2	F
T6	Holly	75	4	N =1 S = 1 E = 1 W =1	Y	NG			Ornamental small Holly with yellow berries	F

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TREE SURVEY KEY:

Tree Number and Species = number of tree on plan and Common Name/botanical name

Height = estimated height of tree from surrounding ground level +/- 1.5 metres

Diameter = diameter of main stem @ 1.5 metres above ground level

Crown Spread = maximum extent of branches measured radially from the base of the tree, trees with asymmetrical crowns are shown with distances in relation to compass points. N = north etc.

Crown Height = height of canopy and/or first major branch above ground level

Age Class = Young(Y): age less than 1/3rd life expectancy | Semi-mature(SM): 1/3rd to 2/3rd life expectancy | Mature (M): Over 2/3rd life expectancy | Over mature (OM): mature and in state of decline | Veteran (V): Surviving beyond typical age range for species

Grading Category: As per BS 5837:2005 Table 1 – Tree quality assessment, which refers to tree quality and landscape/amenity value; A=high, B=moderate, C=low

Estimated Future Lifespan = estimated useful and remaining contribution to the site in years - <10, 10-20, 20-40 & >40

Structure = structural condition of the tree based on roots, trunk, and major stems/branches along with the presence of any structural defects and decay organisms. Categories are: Very Good (VG); Good (G); Moderate (M); Poor (P); Hazardous (H)

Physiology/Condition = Overall health, condition and function of the tree in comparison to a 'normal' specimen of its species and age. Categories are: Above average (AA); Average (A); Declining (D)

Other factors = any other physical/environmental factors that could influence the tree now/in the future

Management Recommendations: N = no work required**. CC** = removal of dead, diseased & dying wood from tree crown, thinning of overcrowded crown, removal of Ivy from crown & stem and removal of all epicormic growth within crown including stem & basal epicormic growth on Lime trees.**LC** = lift crown. **TC** = thin crown. **RC** = reduce crown. **P** = pollard. **SP** = scaffold pollard. **RE** = remove epicormic and basal growth. **FP** = Formative prune **F** = fell to ground level. **FG** = fell and grind out stump. **R** = carry out replacement planting. **AI** = 3 yearly arboricultural inspection

N/K = not known

 # = estimated data

NDG = Next door garden

g.l. = ground level

Alan Mitchell System = Estimate of tree age based on open grown tree with full crown. Age in years = Girth (circumference) in centimeters measured at 1.5 metres above ground level and divided by 2.5 ie. Tree of girth 250 cm = 100years old

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PLAN OF SITE & TREES

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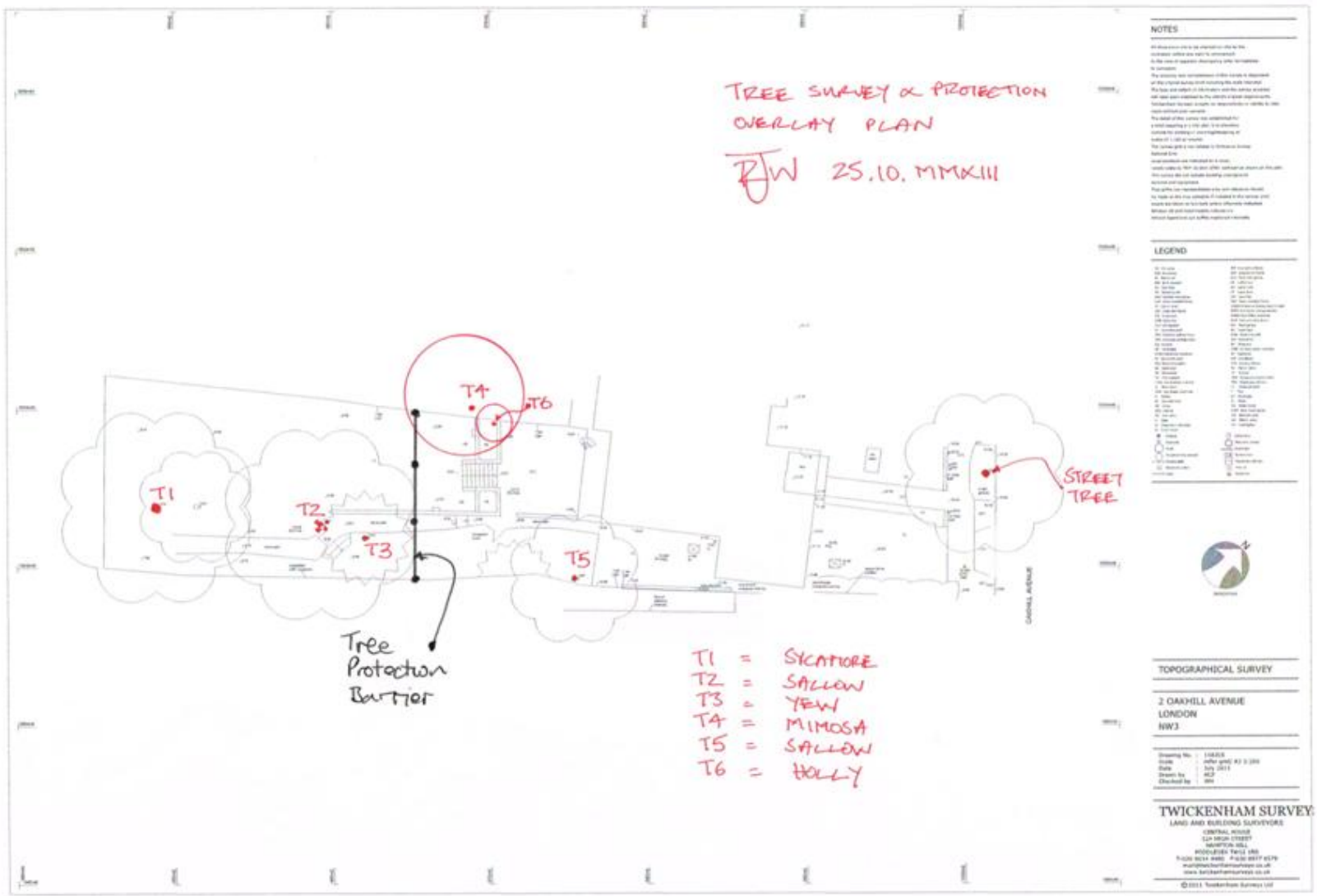

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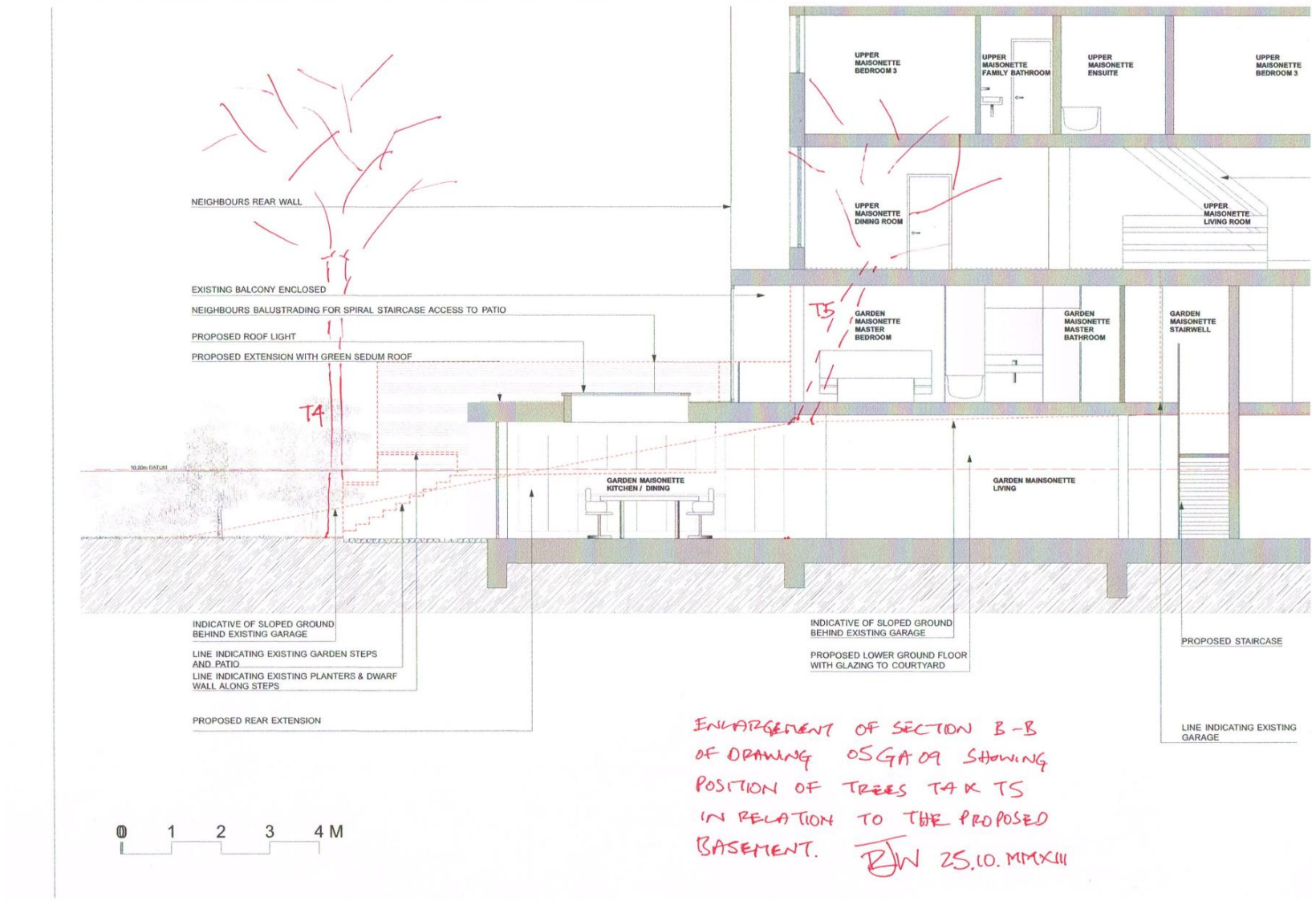

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PICTURE GALLERY

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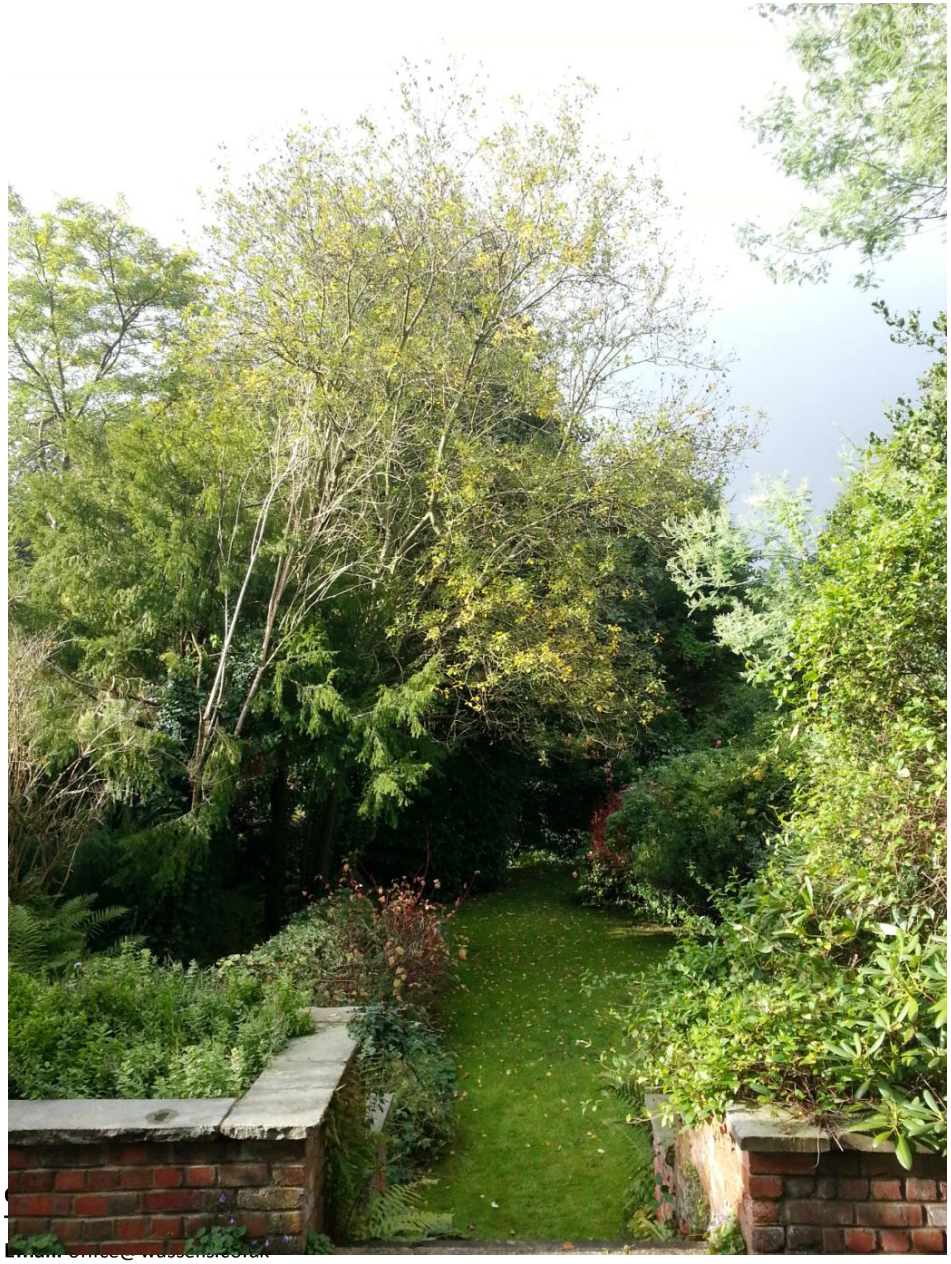
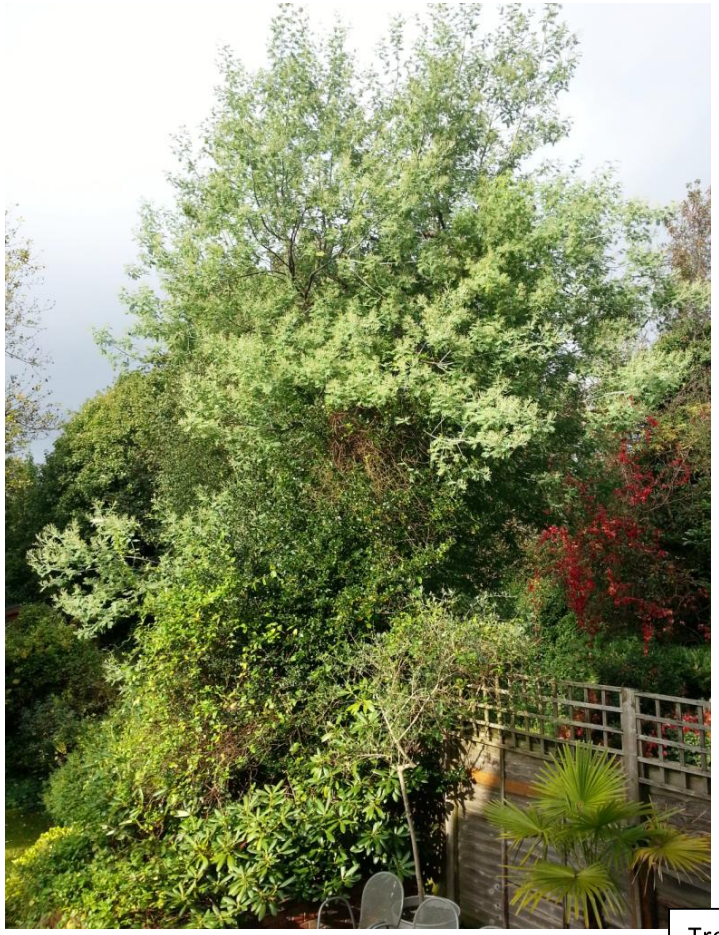


View from terrace patio of rear garden showing trees T3, T2 in centre and T1 behind



Tree T4 showing location in garden of number 2a and crown from terrace patio of number 2

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Tree T5 showing lean into flank wall of number 2 and proximity to both properties

TREE BARRIER SPECIFICATIONS

TREE CARE FLOW CHART

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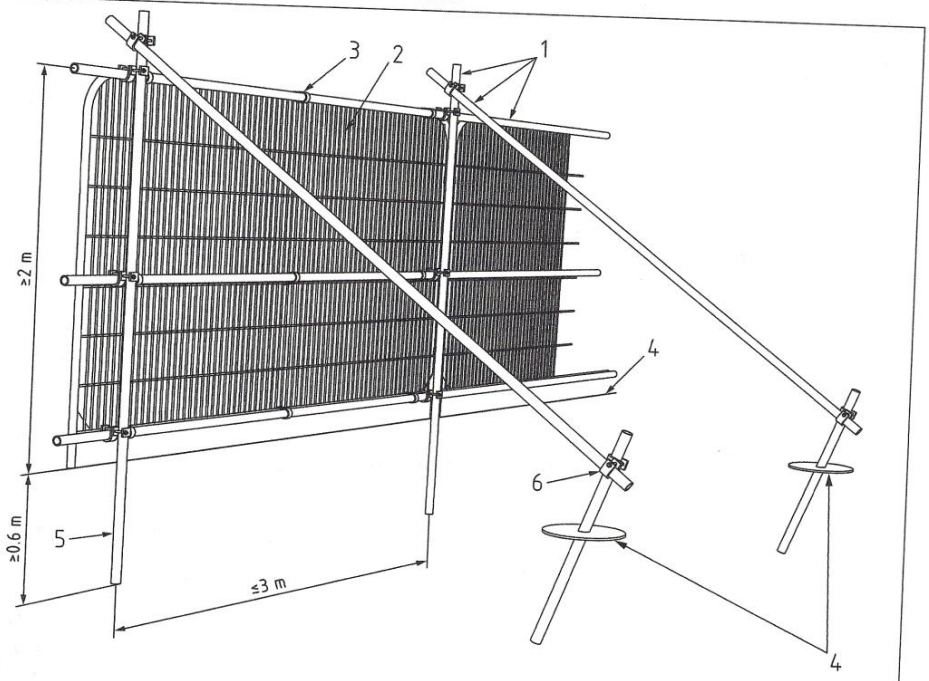
6.2.2.4 All-weather notices should be attached to the barrier with words such as: "CONSTRUCTION EXCLUSION ZONE – NO ACCESS".

Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

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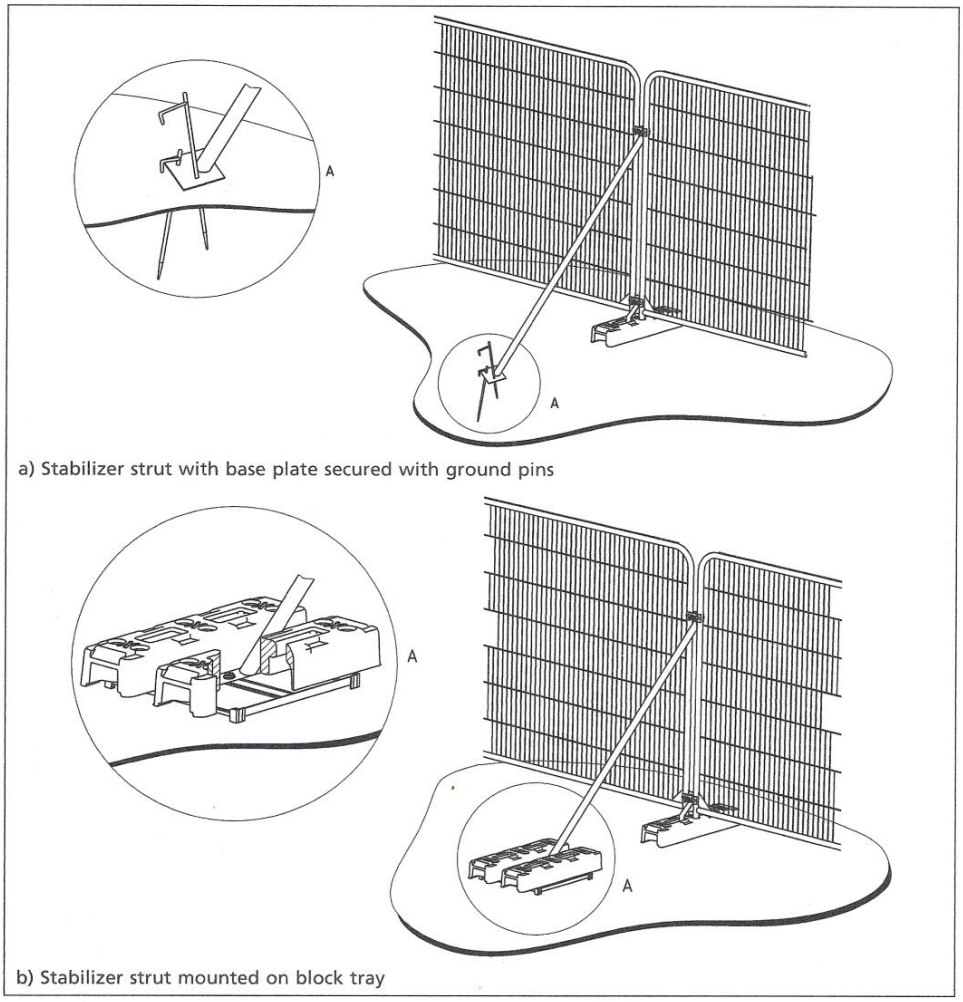
Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

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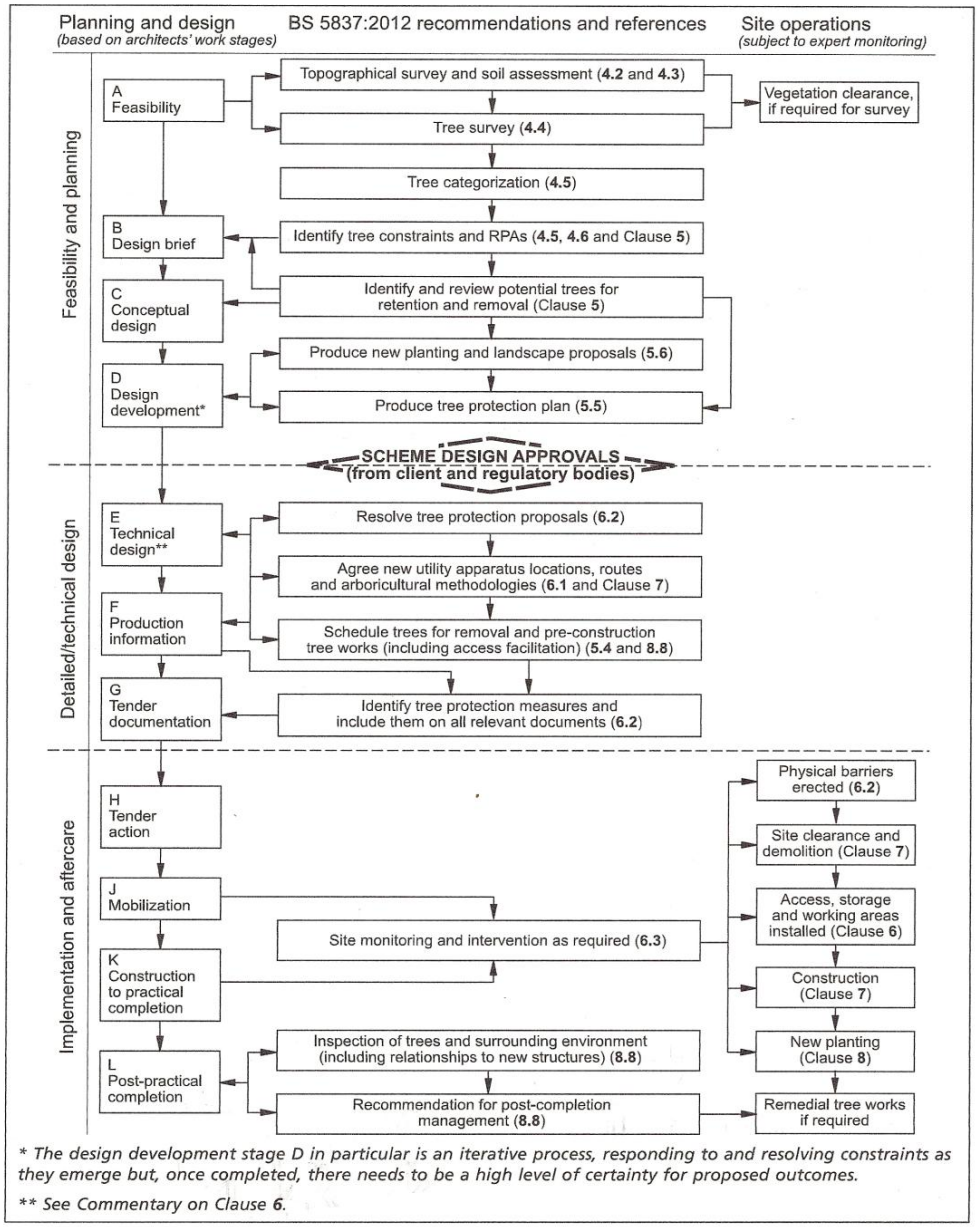
Figure 1 **The design and construction process and tree care**



** 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.*

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