Trees and Construction

BS5837:2012 Tree Survey, Arboricultural Implications Assessment & Method Statement

Site: 45 Elsworthy Road, NW3 3BS

Client: Wolff Architects Ltd

Ref: 231829/AIA/A1 rev A

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Arboricultural Consultant (Author):
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-April 2024 -

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Revision	Description	Date
/	Tree Survey Advice (231480/A1)	2/11/2023
A	Proposed plan reference update	17/7/2024

1. INTRODUCTION

1.1 **Instruction:** This advice has been prepared for the client Wolff Architects Ltd (hereafter; client) and is in respect of the tree related planning considerations at 45 Elsworthy Road, NW3 3BS (hereafter; site).

As the proposal relates to development works at site, the advice herein is produced in accordance with the British Standard 5837 : 2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations'* (hereafter; BS5837).

1.2 **BS5837:** The scope of BS5837 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.

1.3 **Scope of this advice:** This advice has been produced in accordance with BS5837 and is intended to demonstrate the site's realistic arboricultural constraints and assist with the design process. The objective is to systematically assess the site and provide suitable recommendations regarding the proposal's potential impact on trees and vice versa.

1.4 Following instruction the consultant surveyed the site on the 24th Oct 2023 where a site walkover and BS5837 tree survey were carried out; all trees on site and around the application boundary were surveyed from ground level and plotted as either an individual or a tree group.

1.5 This advice is subject to caveat at Appendix I, outlines relevant terms and definitions at Appendix II and constitutes the findings of the preliminary site assessment and associated arboricultural recommendations.

1.6 The survey data and site observations use the supplied plan to illustrate the surveyed trees in plan format as a 'Tree Constraints Plan' (hereafter; TCP); the TCP and the tree survey data table are at Appendix III.

2. SITE INFORMATION & TREE ASSESSMENT

2.1 The site is currently a detached house with gardens to the front and rear accessed from Elsworthy Road. Adjacent to the site are similar style properties with gardens.

2.2 **Proposal:** It is understood that the property is being assessed for a rear extension as per 2333-PL-199-0_Proposed Site Plan.

2.3 The site requires consideration from an arboricultural perspective due to the presence of trees on and around the site; these trees are deemed to be within impacting distance of the existing property and potential construction area.

2.4 <u>The trees</u> -

2.4.1 The tree survey and assessment resulted in the BS5837 quality/retention categories of 'A' Good, 'B' – Moderate, 'C' Low and 'U' -unclassified being attributed the tree; it is also worth noting that the BS5837 circular RPAs are considered to halt at the extents of existing property such as walls etc.

2.4.2 The BS5837 tree survey is a means of objective assessment and reflects the trees' condition, quality contribution, remaining life expectancy and spatial considerations (stem, crown and roots). On this basis and in order to consider the trees' accurate constraints, the survey data has the crown extents for north, south, east west, the stem diameter measurement, and the calculated root protection areas (hereafter; RPAs). Hereafter, the trees are therefore reviewed and considered on their own merits and in line with the guidance of BS5837.

3. FINDINGS & RECOMMENDATIONS

3.1 The following information, as with the prior contents of this report, should be read with the appended tree data table and tree constraints plan (231829/TCP /01).

3.2 General Considerations for Tree Retention / Removal

3.2.1 'A' the category trees are those which are the most 'notable', trees and the scheme should be designed to take into account their retention. i.e. crown clearance RPA avoidance and Layout to avail future growth debris and light pressure.

3.2.2 'B' Class trees are also considered of value both individually and in the landscape and should be retained by design. Proposed encroachment or removal would need to be justifiable and mitigated although Council resistance would be anticipated.

3.2.3 There are low quality 'C' category trees noted off site as such due to either their small scale, defects, and limited current contribution and/or limited future potential. Hence, they should not significantly constrain nor guide the scheme.

3.2.4 T4 is classified as 'U' class and can be removed for arboricultural reasons (see survey data)

3.2.5 The removal of the above trees or vegetation may have an impact on the green cover in the first instance, however, the scheme presents a significant enhancement opportunity. Said removals would have no impact on the long term amenity of the site and will allow for the selection of native species to enhance amenity and biodiversity.

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4. SCHEME / IMPLICATIONS ASSESSMENT

4.1 For this assessment, the proposed scheme has been considered (see; s.2.2 herein). This includes consideration for arboricultural management / tree works for H&S tree risk management, tree removal and pruning options, design solutions, tree protection and sensitive measures to account for trees. As per s.1.6 and s.2.2 herein, The TCP scheme overlay illustrates the proposed scheme.

4.2 The remaining trees will be retained and protected throughout the development. The specific considerations and implications for these are as follows. The drawings referred to can be found in Appendix III. This information has been prepared for the planning submission to demonstrate that construction can be achieved inline with the recommendation set out in the AIA. Further design development that is in line with AIA recommendations is possible through detailed design.

4.3.1 *Consideration for T3 and T5*

4.3.3 It is intended to construct foundations marginally within the RPA of T3 and T6. It is intended to construct the new foundations for a proposed in this location The remaining RPA can be protected by a combination of temporary fencing and retained existing hard surfacing.

To avoid root pulling and damage it is intended to conduct initial excavations to 750mm by hand and all roots encountered to be cut cleanly. Any further excavation can be carried out by machine.

5. ARBORICULTURAL METHOD STATEMENT (AMS) 'CONSIDERATIONS'

5.1 Arboricultural Construction Restrictions

5.1.1 The following restrictions are considered relevant for tree protection purposes which are illustrated on the appended Tree Protection Plan (TPP):

a) ***Tree Works*** **-** are to be completed prior to any and all site works: no tree works not specified within this AIA (or leaning against or attaching of objects to a tree) are permitted unless agreed in writing by the council (subject to standard exemptions).

b) ***Tree Protection*** **-** a site compound will be set up within the application boundary, excluding the surveyed trees as per the TPP, or Protective Barrier Fencing (PBF) is to be installed as per the TPP with works clearance, i.e. 1.5-2.0m around the hard landscape extents, existing boundary walls retained and supplemented to prevent RPA, stem or crown impact; to be installed after tree works and prior to site works.

c) ***Construction Exclusion*** **-** the fenced off areas are Construction Exclusion Zones (CEZ).

d) ***Site Restrictions*** **-** no chemicals/materials are to be transported/stored/used/mixed within the CEZ, and no fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of the tree's canopy or in a CEZ.

e) ***Ground Works*** **-** during site works RPAs/CEZ may not be breached, i.e. no surface works, without the consultant's prior advice and council consent, and no mechanical digging or scraping is permitted within RPAs/CEZ;

e) ***Sensitive Landscape*** **-** the PBF may be temporarily moved to allow pedestrian access to start sensitive soft landscape works within RPA, i.e. turf removal, retained soil levels, new planting, mulch borders.

a) ***Completion*** **-** only following construction and hard landscape completion can PBF be removed and remaining soft landscape works undertaken within RPAs / CEZ (ground levels to be retained and works undertaken manually with non driven machinery).

5.2 Arboricultural Site Monitoring / Supervision

5.2.1 The council will typically request 'a scheme of supervision for the arboricultural protection measures' to confirm tree protection and adherence to working methods around trees and so we set this out below.

5.2.2 The appointed site contractor and project manager will be provided with an approved AMS and TPP and will need to be briefed as to prohibited works and tree protection.

5.2.3 A record of each site visit will be kept and a summary letter drafted for the client, the site manager and the local authority (to be sent to the client for distribution), thus -

- (1) ***Pre-commencement*** to confirm approved tree works, site hoarding / tree protection fence line, ground protection and construction restrictions for ground works.

- (2) excavation of soil to 750mm within RPA of T3 and T5 for proposed basement foundations.

- (3) Further deeper excavation by machine of soil to over 750mm within RPA of T3 and T5 for proposed basement foundations.

- (4) ***After-main construction*** to confirm tree protection measures are still in place and discuss tree protection requirements for any landscape work.

- (5) **Development completion** after all hard landscape works and tree and shrub planting are complete to sign off the site as having adhere to the AMS.

5.3 Tree Works

5.3.1 All approved tree works must be undertaken with the council's written permission (subject to statutory exemption) and undertaken to BS3998 by a tree service contractor who is suitably qualified, experienced and insured to for arboricultural contracting.

5.3.2 In accordance with the approved scheme and the tree related planning condition(s), the following tree works are recommended in conjunction with the scheme (additional tree works must only be undertaken with the full and written permission of the council):

TREE WORK SUMMARY

NUMBER	**TREE REMOVALS / PRUNING WORKS**	
T6 and T7	Remove	Remove in conjunction with the scheme: Replacements to be provided within the landscape scheme.
T3, and G2	Pruning	To be to be selectively crown raised over the proposed development and also to provide clearance for construction aids such as scaffolding. This amounts to 2m clearances and pruning to take place from branch tip inwards rather than stem outwards.
Retained trees		Protection by placement of fixed BS5837 specification Heras panels around the crown / RPA extents to have no access during construction and manually operative sensitive surface works and retained soil levels within RPAs.

5.4 Protective Barrier Fencing (PBF) Specification

5.4.1 Barrier fencing is to be installed (and signed off by way of arboricultural supervision in all 3 phases Demolition Construction and Landscape and first installed for the demolition phase following the completion of the tree works. It is illustrated on the Tree Protection Plans 01, 02 and 03 and is to remain in situ for the entire duration of each phase's configuration. Demolition, ground works/construction processes and Landscape phase unless otherwise agreed in writing by the council.

5.4.2 The barrier fencing is to consist of a series of Heras panels secured in place or fixed hoarding (ply / chipboard panels) to ensure that the fencing lines are well braced to resist impact, prevent access to the RPA/CEZ areas around the approved works.

5.4.3 PBF will be supplemented by ground protection, by way of retained hard surfaces, polythene layer for grounds outside of the PBF and ply boards for pedestrian access within the RPA. As per BS5837 illustrated below.

5.5 Sensitive Ground Works (within RPAs, basement foundations)

5.5.1 This will be initially undertaken by hand under direct on-site arboricultural supervision to a minimum of 750mm deep of any excavation, for proposed foundations.

5.5.2 The soil is to be loosened with the use of a fork or pick and then cleared with the aid of an air-spade and air-vac. All roots to be cut will be cleanly severed with the use of a hand saw or secateurs. The edge of the excavation closest to the retained trees will be covered over with damp hessian to prevent drying out, and where necessary be shuttered to prevent soil collapse or contamination by concrete.

5.5.3 When reached by initial excavation, soil beneath the depth 750mm may be sheet piled, regular piled or individual piles. Any deeper excavations may be undertaken by a machine provided it works from outside of the RPA or has appropriate ground protection in place to move and work upon.

5.6 Underground utilities

5.6.1 Any new underground utilities are to utilise the construction area for new installations and avoid the need for works in proximity to trees. Certainly, utility installations are to be:

- Located outside of RPAs and construction exclusion zones; and
- Installed only following the installation of the protective barrier fencing to ensure the retained trees and their RPAs are protected.

5.6.2 The following restrictions are recommended for underground utilities within RPAs:

- Any necessary excavations to be undertaken sensitively using either a no-dig method (e.g. Air-Spade) and/or under arboricultural supervision;
- Any exposed roots shall be packed with a clean damp sand (not builders sand) and wrapped in hessian sacking to protect them.
- Small roots which are identified (those less than 25mm diameter) may be carefully pruned back with a clean sharp tree saw; and
- Larger roots which are identified (those greater than 25mm in diameter) are to be retained and protected as they may be necessary for a tree's health and stability.

5.6 Landscape Detail

5.6.1 No trees are to be removed so extensive landscape proposals are not required other than making good after the construction phase.

5.7 Report Handling

5.7.1 This report is released to the client and architect to be distributed at their discretion and the consultant is available for queries relating to this report and/or trees.

5.7.2 The proposed scheme is reviewed in respect of the arboricultural constraints and is considered to be achievable in line with the BS5837 guidance. The tree protection methods herein may be approved by the council for which a planning approval will be subject to a final and detailed Arboricultural Method Statement based on the approved information and other detail perhaps not available at the pre-planning approval stage, i.e. final landscape plan.

5.7.3 This AMS and the TPP may be approved by the council in support of the application, subject to a conditioned final AMS and TPP as a means of authorised tree protection measures; all site personnel will have access to a copy and the tree work and protection details are to be inspected as per s.5.2 for *'Arboricultural Monitoring / Supervision'*.

This concludes our advice.

Appendix I

Caveat

Any and all information supplied to Indigo Surveys Ltd by/on behalf of the client is assumed to be accurate unless otherwise informed. I This advice is limited to the observations made on the date of inspection as detailed herein and any deletion, editing or alteration will result in the advice being null and void in its entirety. I This advice in its entirety may be deemed null and void if remedial works are undertaken on any area of the site, on or after the date of the survey. I No liability is assumed by the author or by Indigo Surveys Ltd for any misuse, misinterpretation or misrepresentation of this advice. I This advice is not valid in adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events. I No responsibility is assumed either by the author of this advice or by Indigo Surveys Ltd for any legal matters that may arise as a consequence. I Neither the author nor Indigo Surveys Ltd will be required to attend court or give testimony as part of this agreement. I The responsibility for any works undertaken on the basis of the recommendations of this advice does not form part of this agreement.

Appendix II

Terms and Definitions

"Arboriculturist" - person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.

"Competent Person" - person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.

"Topographical survey" - an accurately measured land survey undertaken to show all relevant existing site features. *A method of carrying out topographical surveys is given in RICS specification* Surveys of land buildings and utility services at scales of 1:500 and larger.

"BS5837 Tree survey" - should be undertaken by an arboriculturist to record information about the trees on or adjacent to a site. 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 categorisation method" - trees should be categorised in accordance with the BS5837 cascade chart by an arboriculturist. This is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of development occurring.

"Root protection area (RPA)" - layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority, shown as an arboricultural constraint in m^2. The radius is calculated using the BS5837 calculation method. An arboriculturist may change the shape of an RPA but not reduce its area.

"Arboricultural implications assessment" - a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

"Arboricultural method statement" - methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.

"Tree protection plan" - a scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Appendix III

Data Table:	As appended (BS5837 Tree Survey Key & Table)
Tree Constraints Plan:	As appended (231829/TCP/01)
Tree Protection Plan: (Application Stage)	As appended (231829/TPP)

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TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'

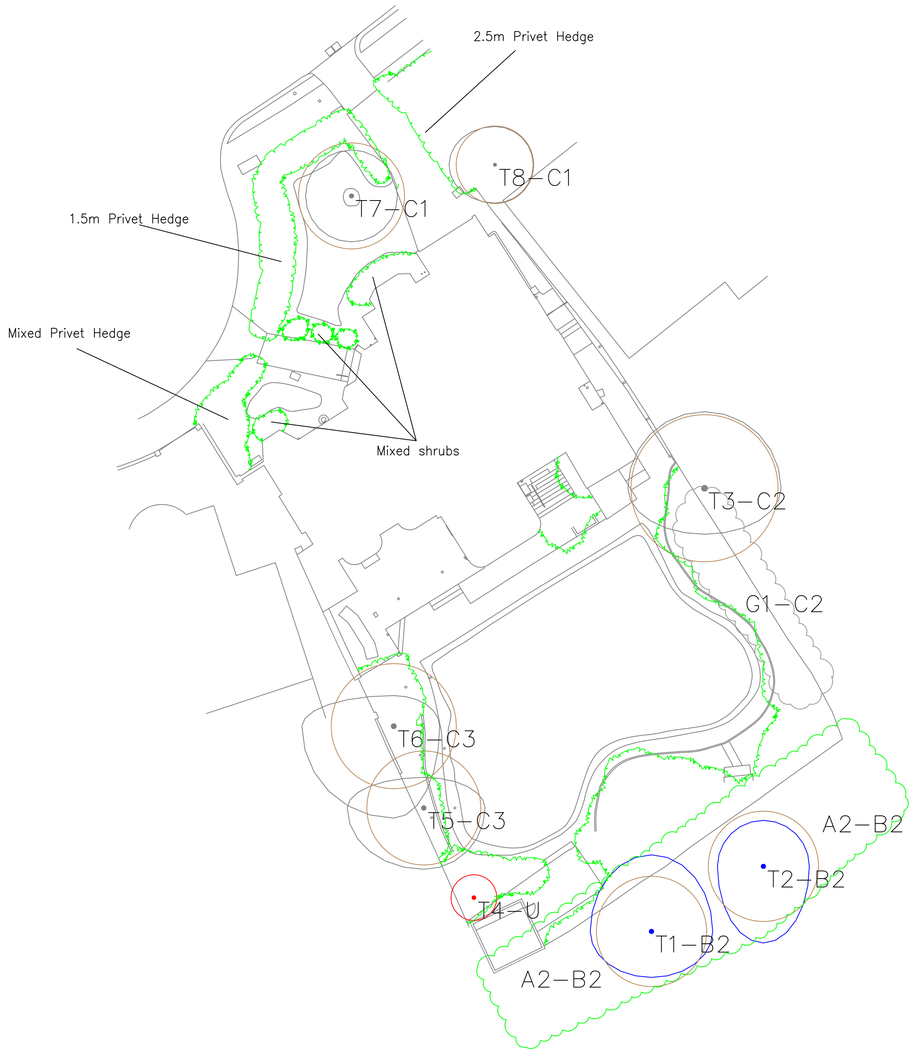
CLIENT: ***PROJECT REF:*** 231829 /A1 ***SITE:*** 45 Elsworthy Road, NW3 3BS

CONTACT: / ***SURVEY DATE:*** 24 October 2023 ***ARB CONSULTANT:*** Andrew Turnbull *FDSc MArborA*

TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.		MANAGEMENT
T1	Ash; Fraxinus, Oleaceae	EM	12	5	3	4	4	300 *	3.6	4	3m - N.West	Normal	40 +	Offsite, no access, view over fence through shrubs.	B	2	
G1	Offsite tree growth	Y - M	5 - 20 +	/	/	/	/	< 75 - 1000 *	/	2 +	/	Poor - Normal	40 +	Backdrop of London Plane 15m+ from site fence, sapling Sycamore, Ash and scrub, no access.	A	2	
T2	Sycamore; Acer, Aceraceae	SM	15	3	5	3	3	300 *	3.6	6 +	/	Fair	20 - 40	No access or stem view, dense climber in crown.	B	2	Management of climbers within crown recommended.
G2	4x Elder; Sambucus, Sapindaceae	M	8 - 10	< 3 all round				300 *	3.6	2 +	/	Fair / Poor	10 - 20	Multiple stem group, offsite, close to fence, scrubby, stem conflicts, deadwood, tarots, decay etc., indicative of age, no stem / base access or view.	C	2	
T3	Cotoneaster	M	10	5	3	5	5	400 *	4.8	1.5	2.5m - all round	Fair	10 - 20	Offsite, close to fence, canopy collective with G2, multiple stems at 2m+, no base view, scrubby form, deadwood and dieback to North.	C	2	
T4	Elder; Sambucus, Sapindaceae	LM	5	< 1.5 all round				260	3.1	N / A	/	Poor / Dead	< 10	3x stems (140mm, 1560mm, 160mm), no visible live growth, dense scrub and climber cover, multiple stems near base, multiple stem crown at 2m+.	U		
T5	Cherry; Prunus, Rosaceae	M	10	2	4	4	5	310	3.7	2	union	Fair	10 - 20	Climber covered stem to 3m, co-dominant at 1.5-2m, dominant growth West, heavy reduction East, 2.5m regrowth.	C	3	
T6	Apple; Malus, Rosaceae	M	12	2	6	3	6	340	4.1	2	union	Fair	10 - 20	Growth lean West, co-dominant at 2m, growth pushing fence, heavy pruning East and growth dominance West, reduced with 1-3m regrowth.	C	3	
T7	Magnolia, Magnoliaceae	M	8	< 3 all round				288	3.5	1	2m - all round	Fair	20 - 40	3x stems (120mm, 180mm, 190mm), small scale ornamental, reduced crown with 1-2m growth, multiple stems <0.5m.	C	1	
T8	Japanese Maple; Acer, Aceraceae	M	6	2.5	2.5	2.5	3	211	2.5	2 +	/	Fair	20 - 40	2x stems (110mm, 180mm), offsite, 1m lower than site level, co-dominant t 0.5m, multiple stem crown.	C	1	

TREE SURVEY 'KEY' - BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'

TPO/CA	-	On client request: presence of Tree Preservation Orders (TPO) / site location within a Conservation Area (CA) & date checked;
TREE REF. #	-	Tree reference number: tag or plan number (T - individual tree, G - group of trees/shrubs, H - hedge);
SPECIES	-	Genus, species and/or common name;
AGE	-	Age classification (NP - new planting, Y - young, EM - Early-Mature, SM - semi mature, M - mature, LM - late mature, OM - over mature);
HEIGHT (in m)	-	Approximate height of tree in metres;
CANOPY (in m) N - S - E - W	-	Approximate branch spread in metres of the four principal compass points;
STEM (in mm)	-	Stem diameter in millimetres: measured in accordance with s.4.6 of BS5837;
RPA (in m)	-	Circle radius of the Root Protection Area: calculated using the stem diameter (single/multiple stem variant, as outlined within BS5837);
CLEARANCE (in m)	-	Crown clearance in metres above the adjacent ground level;
IST BRANCH (in m)	-	Clearance in metres to first significant branch and direction of growth (where relevant);
VITALITY	-	Physiological condition typically gauged from canopy cover and annual extension growth (good, fair, poor, dead);
ESTIMATED REMAINING CONTRIBUTION	-	Approximate number of years a tree will continue to contribute without the need for oppressive arboricultural intervention, categorised in years as <10, 10-20, 20-40 and >40;
NOTES	-	Structural and physiological condition observations;
BS CAT.	-	BS5837 tree quality assessment category: resulting from structural/physiological condition and remaining contribution (approximate useful life expectancy);
	-	Standard retention category **U**: in such a condition that any existing value would be lost within 10 years;
	-	Standard retention category **A**: high quality and value, in such a condition as to be able to make substantial contribution of 40+ years;
	-	Standard retention category **B**: moderate quality and value, in such a condition as to make a significant contribution of 20+ years;
	-	Standard retention category **C**: low quality and value, currently in adequate condition to remain until new planting could be established 10+ years;
	-	Standard retention sub-category, mainly due to: **1**- Arboricultural values, **2**- Landscape values, **3**- Cultural values, including conservation;
MANAGEMENT	-	Preliminary management recommendations (as appropriate);
' * '	-	Within the survey schedule denotes an estimate



Root Protection Area (RPA) Notes

BS5837:2012 standard circular RPAs are illustrated here, with consideration required for anticipated root growth influence and restrictions, such as -

Root growth from trees generally may be absent restricted or deflected from site due to the lower/higher level changes, raised concrete structures, existing foundations, hard surfaces, longstanding compacted ground and existing structures for example. Further investigation may be required to establish the presence or absence of roots.

KEY

Tree Crown Spread

Root Protection Area (RPA)

Tree Stem

T1 Tree No.

Removed Tree

Tree Condition Category

A

B

C

U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'

Indicative

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The original of this drawing was produced in colour – a monochrome copy should not be relied upon.

REV.	DESCRIPTION	DWN	CHK'D	DATE

CLIENT
Wolff Architects Ltd

PROJECT
231829/A1
45 Elsworthy Road, NW3 3BS

TITLE
Tree Constraints Plan

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RPHB	02/11/2023	AT	02/11/2023			1–200

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Drawing Number
A1
231829/A1/TCP/01
REV.

Tree Protection Specification

The tree protection measures outlined within the Arboricultural Method Statement (ref: 231829/A2 AIA_AMS) are to be adhered to as illustrated on this Tree Protection Plan (ref: 231829_A2-TPP-01), and the additional details below, thus:

a) Tree works are to be completed prior to commencement of any and all site processes: no additional tree works (not specified in the method statement), or leaning against or attaching of objects to a tree, are permitted.

b) Protective Barrier Fencing (PBF), with Tree Protection Signs fixed at least every 5m (see detail and illustration on this TPP), is to be installed prior to the site works commencing.

c) Hard Surfaces within RPAs are to be retained where ongoing access is required and supplementary Ground protection is to be installed for exposed soft surfaced RPA sections for material drop-off and storage (needs to be load bearing and prevent chemical run-off or leaching into soils).

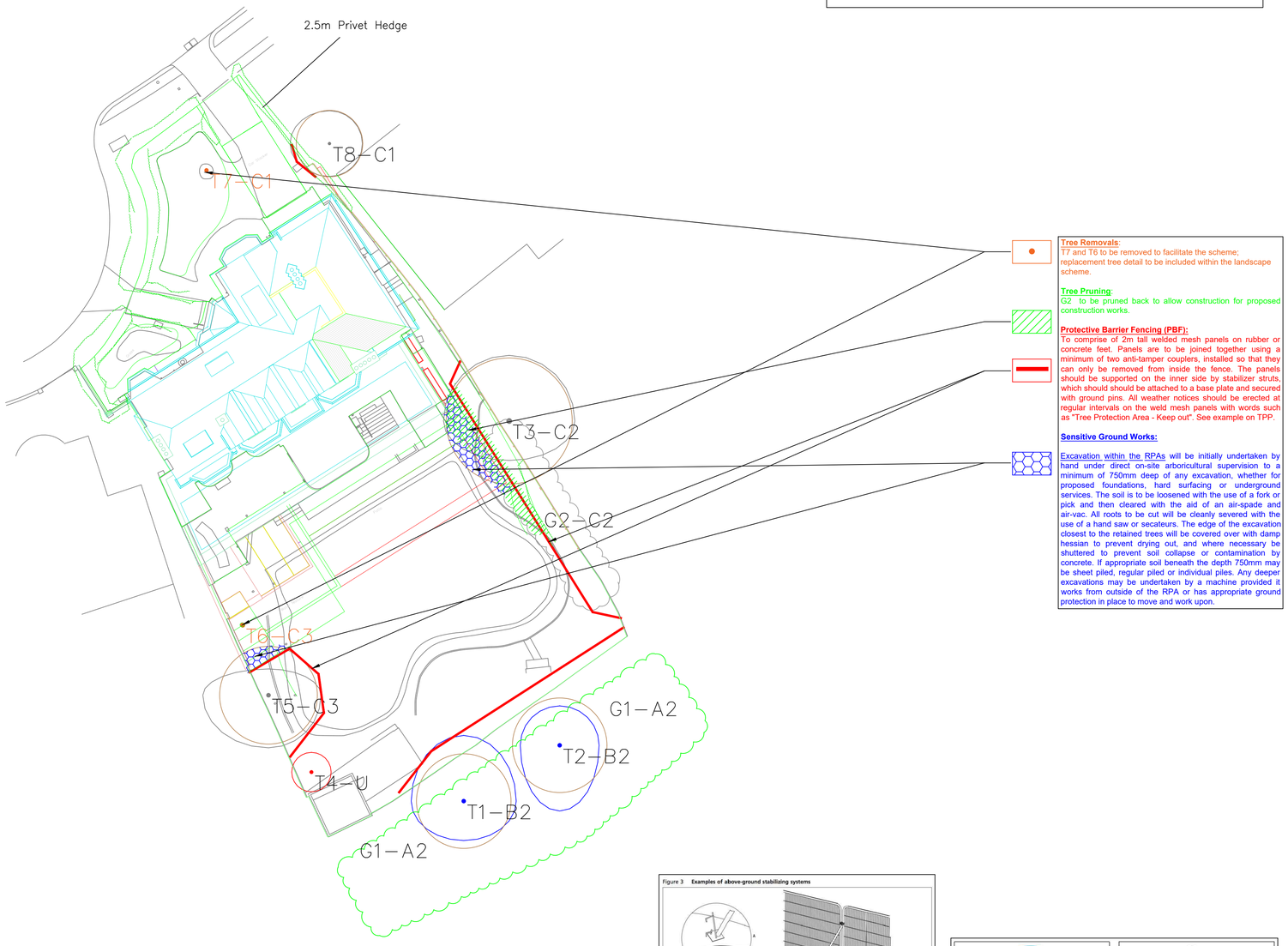
d) No chemicals or materials are to be transported or stored or used or mixed within a RPA or Construction Exclusion Zone (CEZ).

e) No fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of a tree's canopy or in a CEZ.

f) During site works RPAs and CEZs may not be breached, i.e. no surfacing works, without the prior advice of the consultant and the consent of the council.

g) No mechanical digging or scraping is permitted within a RPA or CEZ.

h) When all construction works are completed the PBF can be removed however, should be realigned consistent with the final landscape design to allow for the hard landscape improvement works to be undertaken ahead of the soft landscape shrub and tree planting works.



Tree Removals:
T7 and T6 to be removed to facilitate the scheme; replacement tree detail to be included within the landscape scheme.

Tree Pruning:
G2 to be pruned back to allow construction for proposed construction works.

Protective Barrier Fencing (PBF):
To comprise of 2m tall welded mesh panels on rubber or concrete feet. Panels are to be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The panels should be supported on the inner side by stabilizer struts, which should should be attached to a base plate and secured with ground pins. All weather notices should be erected at regular intervals on the weld mesh panels with words such as "Tree Protection Area - Keep out". See example on TPP.

Sensitive Ground Works:

Excavation within the RPAs will be initially undertaken by hand under direct on-site arboricultural supervision to a minimum of 750mm deep of any excavation, whether for proposed foundations, hard surfacing or underground services. The soil is to be loosened with the use of a fork or pick and then cleared with the aid of an air-spade and air-vac. All roots to be cut will be cleanly severed with the use of a hand saw or secateurs. The edge of the excavation closest to the retained trees will be covered over with damp hessian to prevent drying out, and where necessary be shuttered to prevent soil collapse or contamination by concrete. If appropriate soil beneath the depth 750mm may be sheet piled, regular piled or individual piles. Any deeper excavations may be undertaken by a machine provided it works from outside of the RPA or has appropriate ground protection in place to move and work upon.

KEY

Tree Crown Spread

Root Protection Area (RPA)

Tree Stem

T1 Tree No.

Removed Tree

Tree Condition Category

A

B

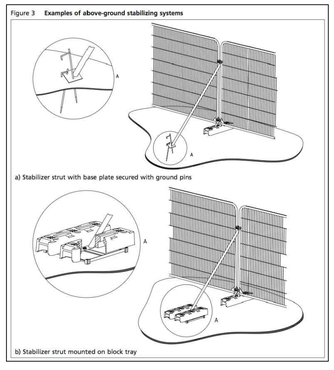
C

U

The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'

Indicative

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

DO NOT SCALE FROM DRAWING

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REV.	DESCRIPTION	DWN	CHK'D	DATE
A	Based on TCP 231829 & 2333-PL-199-0_Proposed Site Plan	RB	TB	17/7/24
	Based on TCP 231829 & 2333-PL-200-0_Proposed Plans	RB	TB	8/4/24

CLIENT
Wolff Architects Ltd

PROJECT
231829/TPP/A1
45 Elsworthy Road, NW3 3BS

TITLE
Tree Protection Plan

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RPHB	8/4/2024	AT	8/4/2024			1–200

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