Trees and Construction

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

Site: 157 Old Station Road, Hayes Medical Centre, Hayes, London, UB3 4NA

Ref: 21991/A1_AIA

Client: You Architecture Ltd

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- February 2021 -

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1. INTRODUCTION

1.1 **Instruction:** This advice has been prepared for You Architecture Ltd (hereafter; client) and is in respect of the tree related planning considerations at 157 Old Station Road, Hayes Medical Centre, Hayes, London, UB3 4NA (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. The objective of this report is to assess the proposed scheme and provide recommendations regarding the potential impact on trees and vice versa with associated tree works, tree protection details and recommendations for the scheme in consideration for trees.

1.4 Following instruction the consultant surveyed the site on the 6th October 2021 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 topographical survey to illustrate the surveyed trees in plan format as a 'Tree Constraints Plan' (hereafter; TCP).

The TCP has an overlay of the proposed scheme to enable this review. The TCP informs this assessment and is used as a base layer for the appended 'Tree Protection Plan' (hereafter; TPP); the TCP, tree survey data table and TPP are at Appendix III.

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2. SITE INFORMATION & TREE ASSESSMENT

2.1 The site currently comprises an in-use commercial property with associated access and parking.

2.2 **Proposal:** It is understood that a proposed scheme involves the construction an extension to the existing building. This is confirmed as per the client's proposed site plan as illustrated on the TCP.

2.3 The site requires consideration from an arboricultural perspective due to the presence of trees on and around the site.

2.4 <u>The trees</u> -

2.4.1 The tree survey and assessment resulted in the BS5837 quality/retention categories of 'C - low' being attributed to the trees.

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, east, south and 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.

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3. SCHEME / IMPLICATIONS ASSESSMENT

3.1 For the purpose of this assessment, the proposed site plan is used as a basis for consideration. This takes account of anticipated tree removals, tree protection options and potential alterations to account for arboricultural features; as per s.1.6 and s.2.2 herein, the TCP shows the '*proposed site plan'* as an overlay for review.

3.2 The proposed scheme conflicts with the 'C' category trees T1 and T2. These trees are small-scale, self-seeded saplings with limitations on the current amenity contribution. Hence, these trees should not significantly constrain nor guide the scheme and should be removed to facilitate the scheme

3.3 Following the above considerations for trees and noted tree works, the trees are clear of the active construction area. However, the installation of temporary tree protection will be required to ensure no impact for G3 and T3 from access, vehicles, material storage etc.

3.4 Further to the above, the following tree works are required prior to site works.

TREE WORK SUMMARY

NUMBER	TREE REMOVALS / PRUNING WORKS	
T1, T2	Remove	Remove in order to facilitate the scheme.
Retained trees		Protection by placement of fixed Heras panels around the crown / RPA extents, to have no access during construction.

3.5 Further to the above review and in consideration for the tree removals and need to protect retained trees, the following section contains said details as an Arboricultural Method Statement (Application Stage).

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4. METHOD STATEMENT (Application Stage)

4.1 Arboricultural Construction Restrictions

4.1.1 The following restrictions are considered relevant for tree protection purposes which are illustrated on the appended Tree Protection Plan:

a) Tree works; are to be completed prior to any and all site works: additional tree works (or leaning against or attaching of objects to a tree) are not permitted unless agreed in writing by the council.

b) Tree Protection (hereafter; PBF); temporary barrier fencing and supplementary ground protection are to be installed prior to site any works commencing.

c) Construction Exclusion Zone (hereafter; CEZ); following the installation of any PBF the fenced off section is to act as a CEZ and be supplemented with ground protection for RPA sections outside of fenced off areas as the CEZ.

d) Material Handling; no chemicals/materials are to be transported/stored/used/mixed within exposed grounds on site; all chemical / cement storage, transport or use will be pre-prepared with impermeable liner and detail within a Construction Management Plan.

e) Site Management; no fires are to be lit and no machinery, plant or vehicles are to be washed down within 10m of a tree's canopy, within a RPA / CEZ, and the RPA/CEZ may not be breached, i.e. no mechanical digging or scraping is permitted within a RPA/CEZ.

4.2 Arboricultural Site Monitoring / Supervision

4.2.1 The site should be checked by a qualified arboriculturist throughout the construction processes to ensure the tree protection measures are adhered to, thus -

(a) pre-commencement to confirm tree removals and inspect installed tree protection measures; and

(b) prior to removal of tree protection after construction completion to sign off the site.

4.3 Protective Barrier Fencing (PBF) Specification

4.3.1 Barrier fencing is to be installed (and signed off by way of arboricultural supervision) following the completion of the tree works. It is illustrated on the Tree Protection Plan and is to remain in situ for the entire duration of preparation/construction processes unless otherwise agreed in writing by the council.

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4.3.2 The barrier fencing is to consist of a series of Heras panels secured in place by driven scaffold posts or a scaffold frame to ensure that the fencing lines are well braced to resist impact, and site hoarding around the application boundary to prevent access to the RPA/CEZ areas around the approved works.

4.4 Underground utilities

4.4.1 Underground utilities are to be installed as per a dedicated plan and be clear of RPA by design. Otherwise, and if RPAs cannot be avoided, 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.

4.5 Landscape Detail

4.5.1 The finer details of the site landscaping proposals are to be illustrated on a landscape plan. This is to include the exact proposals for hard and soft landscaping together with the details for any new trees' planting locations, species and stock selection, installation and maintenance; this is to be undertaken by the appointed landscape architect who will have the full support of the arboricultural consultant where required.

4.6 Report Handling

4.6.1 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.

4.6.2 The proposed scheme is reviewed in respect of the arboricultural constraints and is considered to be achievable in line with the BS5837 guidance. The recommendations herein may be approved by the council as a means of authorised tree works and tree protection.

4.6.3 This AMS and the TPP may be approved by the council in support of the application 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.4.2 for *'Arboricultural Monitoring / Supervision'*.

This concludes our advice.

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Caveat

Any and all information supplied to Indigo Surveys Ltd by/on behalf of the client is assumed to be accurate unless otherwise informed. | 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. | 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. | No liability is assumed by the author or by Indigo Surveys Ltd for any misuse, misinterpretation or misrepresentation of this advice. | This advice is not valid in adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events. | 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. | Neither the author nor Indigo Surveys Ltd will be required to attend court or give testimony as part of this agreement. | The responsibility for any works undertaken on the basis of the recommendations of this advice does not form part of this agreement.

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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.

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Appendix III

Data Table:	As appended (BS5837 Tree Survey Key & Table)
Tree Constraints Plan:	As appended (21991/TCP/01)
Tree Protection Plan:	As appended (21991/TPP/01)

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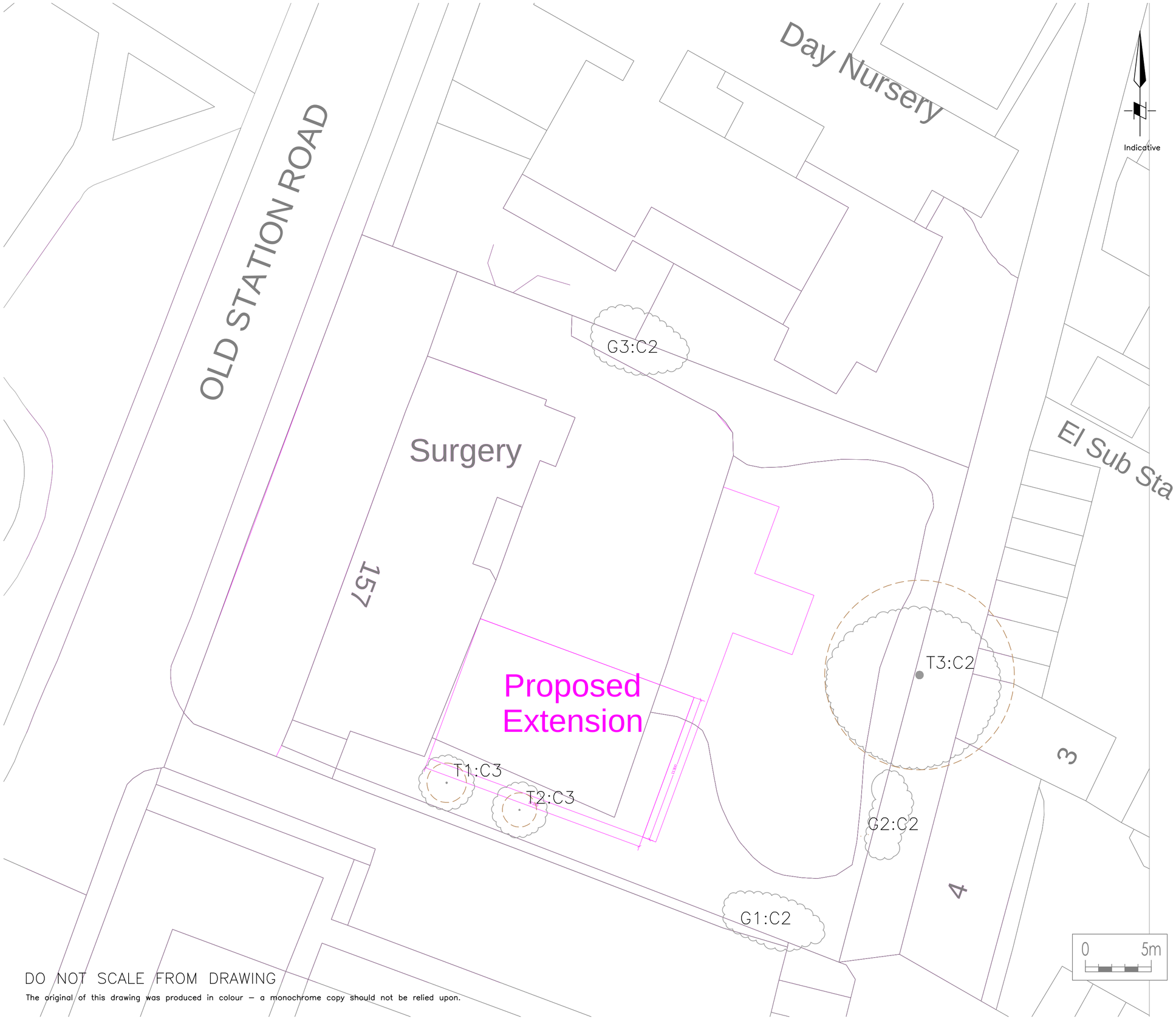
TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'

CLIENT: You Architecture Ltd ***PROJECT REF:*** 21991 ***SITE:*** 157 Old Station Road, Hayes Medical Centre, Hayes, London, UB3 4NA

CONTACT: / ***SURVEY DATE:*** 6th October 2021 ***ARB CONSULTANT:*** Tony Banner *TechCert (ArborA) TechArborA*

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	Y	4	2	2	2	2	126	1.5	1	1	Normal	10 - 20	Multi-stem sapling.	C	3	
T2	Sycamore; Acer, Aceraceae	Y	4	2	2	2	2	111	1.3	1	1	Normal	10 - 20	Multi-stem sapling.	C	3	
G1	Ash; Fraxinus, Oleaceae	Y	6	/	/	/	/	80	1.0	/	/	Normal	10 - 20	Sapling group.	C	2	
G2	Hawthorn; Crataegus, Rosaceae	SM	7	/	/	/	/	200	2.4	/	/	Normal	10 - 20	Offsite, crown dieback noted in parts.	C	2	
T3	Sycamore; Acer, Aceraceae	M	14	5	7	6	7	600	7.2	4.5	5	Normal	10 - 20	Offsite, co-dominant stem below 2m, ivy into crown.	C	2	
G3	Sycamore; Acer, Aceraceae	M	14	/	/	/	/	350	4.2	2	/	Normal	10 - 20	On and offsite group with shrub understorey, scrubby, ivy limits visual tree assessment, hard surfaces in RPAs.	C	2	

TREE SURVEY 'KEY' - BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'		
FIELD KEY:		
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, SM - semi mature, EM - Early-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 the tree will continue to make a contribution 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
	-	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
	-	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



KEY

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.

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'

DO NOT SCALE FROM DRAWING

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

REV.	DESCRIPTION	DWN	CHK'D	DATE

CLIENT

You Architecture Ltd

PROJECT

21991

157 Old Station Road, Hayes Medical Centre, Hayes, London, UB3 4NA

TITLE

Tree Constraints Plan

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RCK	13/10/2021	TB	14/10/2021			1:200

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Drawing Number

A2

21991/TCP/01

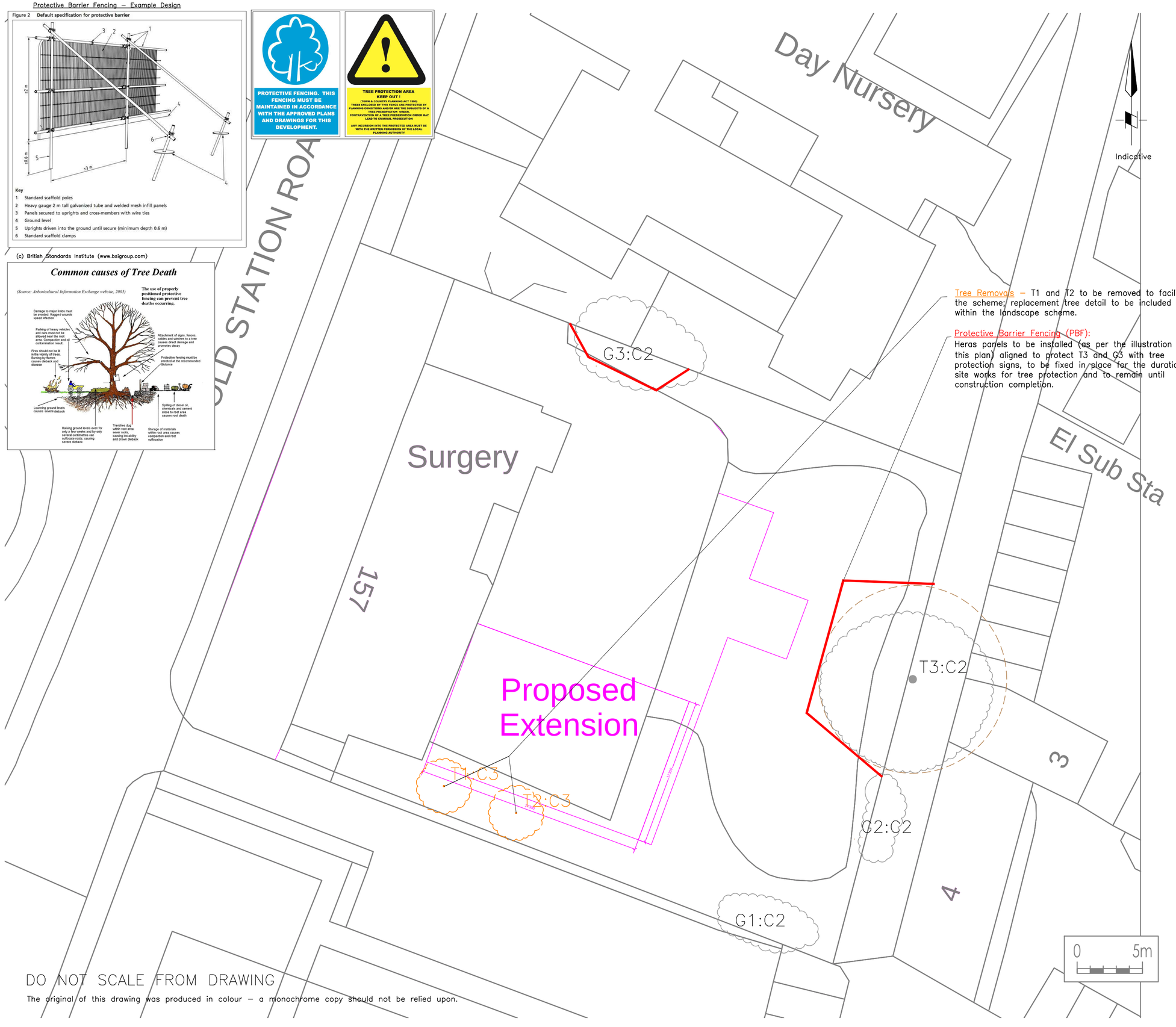
REV.

Protective Barrier Fencing – Example Design

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



KEY

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.

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'

Tree Removals – T1 and T2 to be removed to facilitate the scheme; replacement tree detail to be included within the landscape scheme.

Protective Barrier Fencing (PBF):
Heras panels to be installed (as per the illustration on this plan) aligned to protect T3 and G3 with tree protection signs, to be fixed in place for the duration of site works for tree protection and to remain until construction completion.

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REV.	DESCRIPTION	DWN	CHK'D	DATE
/	Uses TCP as base layer	TB	AT	14/10/21

CLIENT
You Architecture Ltd

PROJECT
21991
157 Old Station Road, Hayes Medical Centre, Hayes, London, UB3 4NA

TITLE
Tree Protection Plan

DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RCK	13/10/2021	TB	14/10/2021			1:200

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