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Arboricultural Survey & Impact Assessment (BS5837:2012)

Site

50 Belsize Park Gardens
London
NW3 4ND

Client

LBMV Architects

Date of Report:

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Report Reference:

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Report Prepared by:

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1.0 Introduction

1.1 This report has been commissioned by LBMV Architects to survey, assess and provide an Arboricultural Impact Assessment and Method Statement for the trees sited within close proximity of proposed development works at 50 Belsize Park Gardens, London, NW3 4ND.

1.2 A site visit was conducted on 24th September 2021 to survey and assess the trees. The weather at the time of inspection was bright and mild with trees in early autumnal mode.

1.3 The tree survey, report and recommendations have been compiled for the 16 no. trees and 5 no. shrubs (T1-T21) surveyed within the site and neighbouring sites where relevant.

1.4 The details of the subject trees are set out in the tree survey table in *Appendix A*. The trees were surveyed on the date and time shown above and the tree survey assessment information for the tree describing size, condition and surroundings are found within this appendix.

1.5 The trees located within the site are shown in site plans T001-T003, Appendix B, and these correspond to the tree survey results table, Appendix A. Photographs of the trees can also be found in Appendix C.

1.6 This report and the opinions within it have been produced by Marcus Foster, a qualified arboriculturist and Professional Member of the Arboricultural Association with over 20 years experience and holding a National Diploma in Arboriculture, the Arboricultural Association's Technicians Certificate, Professional Tree Inspection Certificate (LANTRA) as well as a degree in History and Society. Work experience within the industry includes work as a Contracts Manager for an Arboricultural Association Approved Company, a Local Authority Tree Preservation Officer and an independent Arboricultural Consultant. As a consultant many of projects undertaken are in the inner London Boroughs of Islington, Hackney, Westminster, Camden, Southwark and RBKC, making Marcus Foster familiar with the most recent requirements of development and constraints on urban trees.

1.7 No additional documentation has been referred to relating to the trees or the property for the compilation of this report.

2.0 Survey Details and Scope

2.1 The site survey included the 16 no. trees and 5 no. shrubs (T1-T21) as shown in the survey, *Appendix A*, and also highlighted on the site plans, *Appendix B*.

2.2 The trees and shrubs were surveyed from ground level from within their site location. The diameter of the trunks have been measured using a DBH tape at 1.5m height. The height of the trees have been estimated.

2.3 The following information was recorded for each tree and is shown in the Tree Schedule included in *Appendix A*:

- Number: an identity number which cross-references locations shown on the plan in Appendix A with the schedule in Appendix B.
- Species: listed by common names
- Tree Height: height in metres (m)
- Tree Spread: spread in metres (m)
- Stem diameter: measured in millimetres (mm) and taken at 1.5m above ground level
- Age Class: Y (young); EM (early-mature); M (mature); OM (over-mature)
- Vigour: G (good); F (fair); P (poor); D (dead)
- Structural Condition: G (good); F (fair); P (poor); D (dead)
- General Condition Specific comments relating to each tree
- Estimated Remaining Contribution (years)
- BS5837 Category Grading
- Protection Distance m2 Area (where applicable – BS5827: 2012)
- Protection Distance Radius (where applicable – BS5827: 2012)

2.4 Information recorded in the tree survey, *Appendix A* is expanded in the report findings and preliminary recommendations have been made in *Section 5*.

2.5 Findings as shown within *Appendix A* and assessed within *Section 5* are also highlighted within *Appendix B* which incorporates the Tree Constraints Plan (TCP) - drawing T002 addressing areas where arboricultural solutions are required. The Tree Protection Plan (TPP) - drawing T003 provides outline tree protection measures.

3.0 Survey Limitations

3.1 No soil excavations have been carried out.

3.2 This report only considers the trees and conditions at the time of inspection. As the inspection was only visual no guarantee can be given concerning the condition of the wood at present in any of the trees inspected and furthermore that no future problems or deficiencies may arise.

3.3 The survey has been undertaken as a survey of the trees without prior influence of the development and implicating factors.

3.4 No invasive tools were used during this site survey.

3.5 It should be noted that vegetation including shrubs within this / the neighbouring sites have not been included in the survey as none were within close or relevant proximity .

3.6 The survey has been undertaken from within the site only.

4.0 Tree Survey Summary

4.1 The trees have been surveyed in accordance with BS5837: 2012 'Recommendations for trees in relation to construction' (BS5837: 2012) and have been rated as follows:

Category 'A' trees

Trees of high quality with an estimated remaining life expectancy of at least 40 years. Trees have been categorised as 'A' trees for one of the following reasons:
- Mainly arboricultural qualities
- Mainly landscape qualities
- Mainly cultural values including conservation

Within the Site Plan (Appendix B) those trees rated as 'A' category trees have a **green** outline as denoted within the site plan key / survey.

N/A

Category 'B' trees
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. Trees have been categorised as 'B' trees for one of the following reasons
- Mainly arboricultural qualities
- Mainly landscape qualities
- Mainly cultural values including conservation

Within the Site Plan (Appendix B) those trees rated as 'B' category trees have a **blue** outline as denoted within the site plan key.

T1, T11, T13, T17, T19, T20

Category 'C' trees
Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Trees have been categorised as 'C' trees for one of the following reasons

- Arboricultural qualities - unremarkable trees of very limited merit
- Mainly landscape qualities
- Trees with no material conservation or cultural value

Within the Site Plan (Appendix B) those trees rated as 'C' category trees have a **grey** outline as denoted within the site plan key.

S2, S3, S4, T5, T6, T7, T8, T9, T10, T12, S15, T16, T18, T21

Category 'U' trees
Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.Within the Site Plan (Appendix B) those trees rated as 'U' category trees have a **red** outline as denoted within the site plan key.

S14

4.2 The trees have been surveyed taking into account condition, general health and form without the development process influencing the survey. In addition they have also been surveyed taking account of amenity value that is offered in relation to both the landscape and surrounding buildings and streetscape. This report outlines the impact that the proposed development will have on the overall treescape and landscape; it provides recommendations to ensure that long-term amenity value for the area is retained.

4.3 The report has been written with close reference to the British Standard Guidance, British Standard 5837: 2012 'Recommendations for trees in relation to construction' (BS5837: 2012), which addresses the juxtaposition between trees and structures. The Arboricultural Impact Assessment highlights areas where the trees will require protection which should be addressed within the Arboricultural Method Statement (AMS) and/or Tree Protection Plan (TPP) specific to the site and proposed scheme, and corroborating with all construction and landscape method statements as relevant.

4.4 The report specifies precautions which shall be taken when working close to retained trees. Important terms include:

Root Protection Area (RPA)
The area defined as requiring protection from development from retained trees within BS5837 (2012). Using a calculation provided within BS5837 a radius distance is provided based on a measurement of the main stem taken at 1.5m height.

Construction Exclusion Zone (CEZ)
This is the RPA where no construction activity should occur and damage is prevented by either installing fencing to restrict access or installing ground protection that allows limited access above the ground, while protecting the rooting environment below.

Due to site constraints and the encroaching nature of development for an area within the RPA outside the CEZ where works are proposed, works must be carried out with care to minimise any impact on the tree rooting environment.

Tree Protection Plan (TPP)
The document which defines the extent and methodology of tree protection for the entire development process. This should be referred to AT ALL TIMES by the principal contractor and shall ensure safe protection of all retained trees on site.

5.0 Arboricultural Impact Assessment

Site Overview

5.1 The 16 no. trees and 5 no. shrubs (T1-T21) located within close proximity of the proposed development works are sited within the following properties:

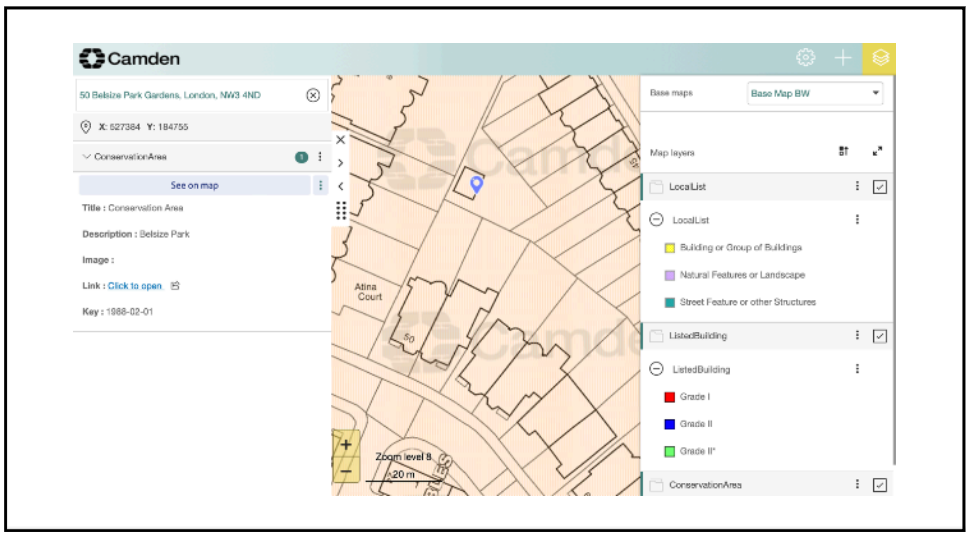
50 Belsize Park Gardens: T1-T9
45 Primrose Gardens: T10
55 Primrose Gardens: T18
53 Primrose Gardens: T19
51 Primrose Gardens: T20 & T21
6 Belsize Grove: T11
8 Belsize Grove: T12
Ormonde, 10-14 Belsize Grove: T13-T17

5.2 The following statutory checks have been made in relation to the trees and their status within London Borough of Camden (LBC):

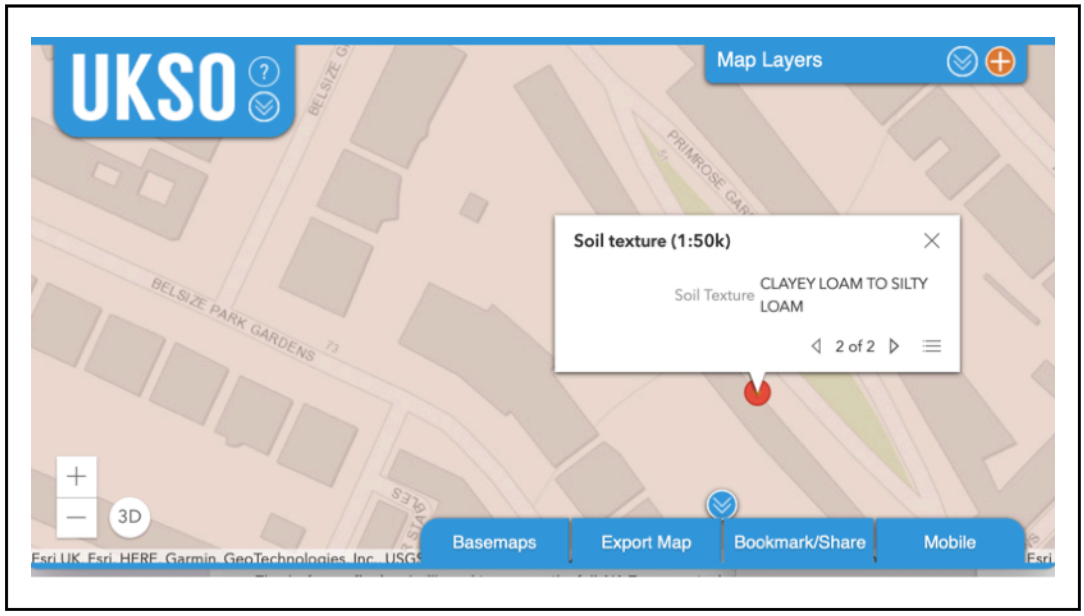
CONSERVATION AREA STATUS
Belsize Park, LBC

TREE PRESERVATION ORDER (TPO) STATUS
TPO protection check has not been undertaken. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order , and those trees without. This is principally because a detailed planning consent overrides any TPO protection

5.3 The following extracted map confirms the Conservation Area status as shown within https://ssa.camden.gov.uk/connect/analyst/mobile/#/main?mapcfg=CamdenConservation&lang=en-gb 11th July 2022:



5.4 The underlying soil to this area is classified as 'clayey loam to silty loam' within the UK Soil Observatory - www.ukso.org - a medium to heavy soil mix as confirmed below:



5.5 The presence of a clay element within the soil is significant in terms of both tree protection and foundation design. Clay soils can experience substantial volume changes when vegetation extracts moisture from the ground and they are also prone to compaction when wet; the soil is deemed as being of medium heavy texture. Any foundations should also be designed in accordance with the recommendations contained within NHBC Chapter 4.2 (National House Building Council, 2010) and should account for the possibility of both subsidence and heave.

5.6 The site comprises a semi-detached residential dwelling with hard and soft landscapes laid to the front and rear.

5.7 For the purposes of this report, reference has been made to the following plans for the proposed development:

ARCHITECTURAL DRAWINGS
LBMV Architects
0087-A1000-EXISTING
0087-A2000-PROPOSED

5.8 The proposed development comprises:

(i) Demolition of existing structure
(ii) Construction of new dwelling
(iii) Associated landscape works

5.9 The development has the potential to affect the trees in the following ways:

•Loss of 3 no. 'C' category shrubs and 1 no. 'C' category tree to facilitate development

•Potential impact to the root plate of retained trees during development process from development works

•General development process impacting retained tree's root plates

•The use of and storage of materials and chemicals including concrete on site within close proximity of the trees has the potential to cause damage

•The long-term impact of associated works of the proposed development

5.10 The trees and the impact from the proposed development are evaluated within this section to determine overall arboricultural impact from the proposed development. Where trees are retained the Root Protection Area (RPA) for each tree is evaluated in relation to proposed development works and the following is assessed:

(i) Where tree protection measures are deemed appropriate these are highlighted as being required

(ii) Tree protection measures are outlined within the Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP)

5.11 Additionally where trees are proposed for removal, measures of mitigation are evaluated.

Arboricultural Impact Assessment

50 Belsize Park Gardens: T1-T9

5.12 The trees and shrubs sited within the subject site are of the following species:

Silver birch (*Betula pendula*)
Elder (*Sambucus nigra*)
Purple plum (*Prunus cerasifera* 'Pissardii')
Bay laurel (*Prunus laurocerasus*)
Leyland Cypress (*Cupressus x leylandii*)

5.13 The main attributes of the trees are as follows:

- T1, Birch with Balanced crown shape and 'B' category rating
- Elder shrubs S2, S3, S4 sited to boundaries being self sown and with generally poor form - 'C' category ratings
- Purple plum, T5 with ornamental form growing against existing structure - 'C' category rating
- T6 - T9, Leyland Cypress and Bay laurel trees comprising evergreen screening trees to the eastern boundary and also sited between T10 - off site to east affording protection of this tree by virtue of location

5.14 Within the subject site the retention and protection of the 'B' category tree within close proximity of the development, tree T1 shall ensure retention of the amenity value of the site via canopy cover. Without incursion (albeit very minor - less than 1%) the tree shall be retained and protected; the following tree protection measures shall be applied as specified within Section 6, AMS and the TPP:

(i) TREE PROTECTION FENCING
Ground protection for RPA area exposed to construction works shall be implemented as shown within the AMS & TPP

(ii) GROUND PROTECTION
Ground protection for RPA area exposed to construction works shall be implemented as shown within the AMS & TPP

5.15 For the loss of the 3 no. 'C' category shrubs and 1 no. 'C' category tree to facilitate development the loss of amenity value is limited. These shall be mitigation within proposed landscape scheme.

6 -8 Belsize Grove & Ormonde, 10-14 Belsize Grove: T11-T17

5.16 Trees off site to the south and west include the following species:

Common lime (*Tilia x europae*)
Norway maple (*Acer platanoides*)
Sycamore (*Acer pseudoplatanus*)
Cotoneaster (*Cotoneaster lacteus*)
Privet (*Ligustrum ovalifolium*)
Holly (*Ilex aquifolium*)

5.17 Key attributes of the off site trees are as follows:

- Greatest extent of canopy cover within close [proximity of development concentrated to the western boundary
- Larger 'B' category Sycamore, Maple and Sycamore trees cyclically managed historically including crown lifting over site
- Limited overhang to site; at greatest extent Overhang of 2m branch lengths (sub 25mm diameter) at 2-7m height.

5.18 For trees T11 & T12 there is minor incursion to the site. The impact of the incursion RPA is deemed limited due to the following factors:

- Limited incursion
- Existing boundary walls (brick built)
- No incursion outside of existing footprint for proposed structure against western boundary

5.19 The following tree protection measures shall be applicable for these trees:

(i) GROUND PROTECTION
Ground protection for RPA area exposed to construction works shall be implemented as shown within the AMS & TPP

51, 53 & 55 Primrose Gardens: T18 - T21

5.20 Trees off site to the north include the following species:

Leyland Cypress (Cupressus x leylandii)
Sycamore (*Acer pseudoplatanus*)
Pear (*Pyrus domestica*)
False acacia (*Robinia pseudoacacia* 'Frisia')

5.21 For tree T20, Sycamore only there is an incursion within the proposed development footprint. The tree has the following attributes in relation to proposed development

- Growing 300mm from boundary wall
- Reduced / managed within past 12-18 months with fair growth from high pollard points at 6-12m height

The impact of the incursion RPA is deemed justifiable due to the following factors:

- Existing boundary wall (brick built)
- Managed form of tree
- SIngle storey structure with foundations achievable with tree protection measures eg helical screw piles

5.22 In addition the limited crown overhang and managed form of tree with favourable site aspect means that future occupancy of the tree in relation to development does not require assessment.

5.23 The tree shall be retained and the following tree protection measures shall be applied as specified within Section 6, AMS and the TPP:

(i) GROUND PROTECTION
Ground protection for RPA area exposed to construction works shall be implemented as shown within the AMS & TPP

(ii) PRECAUTIONARY AREA
For works and excavations as outlined within AMS

Summary of Arboricultural Impact

5.24 The proposed development requires tree protection measures and mitigation for the implementation of development as follows:

Tree Protection applicable to the following trees:
T7, T8, T9, T10, T11, T12, T16, T17, T18, T20, T21

Mitigation applicable for the removal of the following tree and shrubs:
S2, S3, S4, T5

5.25 In summary the arboricultural impact as outlined within drawing T002 - Tree Constraints Plan (TCP): require the following tree protection measures

- TREE PROTECTION FENCING
  Specified as follows as highlighted within AMS & TPP:

- GROUND PROTECTION
  Ground protection for development process within RPA of trees as highlighted within AMS & TPP

- PRECAUTIONARY AREA for tree T20
For works and excavations as outlines within AMS

5.26 For loss of 3 no. 'C' category shrubs and 1 no. 'C' category tree the replacement planting strategy shall provide an improvement of tree canopy cover and amenity value for the long term by providing a species selection palette with resilience to climate change and pests and disease as well as an appropriate species selection for location.

6.0 Arboricultural Method Statement

The following tree protection measures require close adherence AT ALL TIMES with full supervision from the consulting arboriculturist as outlined within this report. The measures are outlined within Tree Protection Plan (TPP) - drawing T003.

6.1 **Tree Works**

6.1.1 Tree works are required as confirmed within the Tree Works Schedule - *Section 7* and must be carried out at pre-commencement stage.

6.2 **Tree Protection Fencing**

6.2.1 Protection of the trees highlighted for retention must be implemented as explained below and as specified within the TPP - drawing T003.

6.2.2 These measures must remain for the entire construction process in order to provide a comprehensive barrier from the trees

- The areas surrounding the trees must be surrounded by protective fencing as outlined in TPP - T003
- The protective fencing used must be suitable for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees.
- This barrier must remain rigid and complete during the entire construction process.
- Once the Exclusion Zones have been protected by fencing all weather notices as included in *Appendix D* must be put onto the barrier warning that the area is a construction exclusion zone.
- No building materials or chemicals are stored within the tree protection zone as indicated on the TPP

6.2.3 The site notice as included in *Appendix D* summarising the above information must be visible at all times for employees working within the site.

6.3 **Ground Protection**

6.3.1 For ground protection this must be installed prior to enabling works at pre-commencement of development. The following must be adhered to:

- Implementation of 75mm bark mulch layer overlapped with minimum 15mm plyboard surface or load bearing ground protection boards to provide ground protection for development process
- No storage of spoil within this area
- No storage of chemicals within this area

6.3.2 Where applied, ground protection shall be removed for final landscapes works within the RPA of retained trees.

6.4 **Precautionary Area Works**

6.4.1 For implementation of development works for areas shown on the TPP the Precautionary Area shall be subject to works undertaken in accordance with an approved AMS and Arboricultural Scheme of Supervision. The Precautionary Area works shall be based upon the following principals:

Structural Methodology

6.4.2 The foundation design shall require for excavations and a piling or foundation line within the incurred area of RPA for trees shown on the TPP. All foundation details and ground works sequence must be outlined at pre-commencement and must demonstrate the following methodology:

GROUND WORKS SEQUENCE

PRECAUTIONARY WORKS AREA IDENTIFIED
A Precautionary area is an area where tree protection for excavations and foundation works require implementation within RPA of retained trees. The identification of this area ensures any root severance is undertaken with arboricultural supervision and without poor severance of exposed tree roots

↓

All works within precautionary area highlighted within ‘Toolbox Talk’

↓

Initial hand dug locations of line of proposed foundations to be undertaken to a depth of 1000mm to expose larger roots in excess of 25mm diameter

The hand dug trench undertaken to provide clean face. This shall enable exposure of larger roots in excess of 25mm diameter. These roots should then be severed cleanly using a sharp pruning saw to enable regeneration

↓

The line of excavations and subsequent root severance must thereafter be undertaken by the approved consulting arboriculturist and methodology / completed works detailed within a supervision report.

↓

Any roots left exposed against face of trench including massing of fibrous roots shall be wrapped / covered in hessian and kept damp at all times until soil is re-instated with the following further measures:

(iii) During dormant period (November - March) no further works are required

(iv) During growing season (March - October) in addition to hessian being kept moist the face of trench should be drenched with a soluble seaweed fertiliser to manufacturers application rates on a monthly basis

↓

(v) Upon completion of works infill shall be with a fresh loam based topsoil with mycorrhizal fungi addition to promote root growth

PRECAUTIONARY AREA GUIDANCE FOR ALL EXCAVATIONS

6.4.3 For undertaking excavations within the 'Precautionary Area' guidance below must be adhered to as below

Excavation and dealing with roots

BS5837 (2012) makes provision for undertaking excavations in RPAs, explaining that all excavation must be carried out carefully using spades, forks and trowels, It is important not to damage the bark and wood of any roots. For this area, these tools should be used with no machinery used for the preliminary works.

All excavations to be hand dug excavations only to ensure no severance of major roots

Tree Root Severance Guidance

The contractors must be aware of tree protection specifications n relation to tree roots which must be applied as follows:

- The severance of any tree roots encountered larger than 25mm in diameter MUST NOT occur without prior consultation with the Local Authority Tree Officer or appointed Arboricultural Consultant.

- Any exposed ground within the RPA must be covered in hessian and kept damp where left exposed during works

- If at any point it is deemed not possible to continue with excavations without having to damage very significant tree roots, the Local Authority Tree Officer and / or the appointed Arboricultural Consultant must be contacted.

6.4.4 The works shall be undertaken using hand tools only such as this included below or similar for 'Precautionary Area' as highlighted within the TPP:

6.5 **Storage of Construction site related materials, plant and spoil**

6.5.1 A designated storage area must be confirmed at pre-commencement stage which is located outside of the RPA of retained trees. Strict adherence to this area must be made to this area at all times.

6.6 **Site Welfare & Site Office**

6.5.1 Site welfare must be confirmed at pre-commencement stage and must be outside of the RPA of retained trees - no provision within the TPP is therefore required in relation to trees.

6.7 **Fires**

6.7.1 There must UNDER NO CIRCUMSTANCES be fires within this site.

6.8 **Communication, Monitoring and Compliance**

6.8.1 In ensuring that all Tree Protections Specifications as highlighted within this AMS are closely adhered to at all times, it is important to set out for the long term of the development, communication details for key individuals and tasks that require monitoring within an Arboricultural Scheme of Supervision.

6.9 **Final Landscape Works**

6.9.1 For final landscaping works the following must apply where carried out within the RPA of retained trees

- No reduction in levels of the underlying soil surface will occur during final landscaping works within the RPA of retained trees
- Close adherence with detailed root protections specifications as outlined within this report
- No compaction of soils for establishing level base

6.9.2 No soakaway shall be sited within the RPA of retained trees

6.10 **Installation of utility services**

6.10.1 The installation and/or amendment of utility services within the RPA of retained trees is not required. However where this is required the consulting arboriculturist and Local Authority must be notified prior to any ground tree protection / fencing and barrier removal and the following details adhered to:

- Trenching for the installation of underground services severs any tree roots present and can have a detrimental impact on the structural integrity of affected trees. When services are required to pass through a Tree Protection Area / CEZ, detailed plans showing proposed routes should be drawn up in conjunction with the consulting arboriculturist to avoid long term problems for related trees.

- The preferable method for trenching is to use a ‘Air Spade’ or similar to remove soil with compressed air, therefore minimising damage to roots in the process. Should hand dug excavations be required within the RPA this shall only be undertaken with arboricultural supervision.

6.10.2 Further reference can be made to National Joint Utilities Group (Volume 4, Issue 2) for guidance but any approach must be approved by both the consulting arboriculturist and Local Authority tree officer.

7.0 Tree Works Schedule

7.1 Any tree work should be carried out to BS 3998; 2010 Recommendations for Tree Work.

TREE WORKS SCHEDULE 50 Belsize Park Gardens, London, NW3 4ND				
Tree No.	Common Name	Category Rating	Tree Works	Reason for works
S2	Elder	C1	Fell to ground level and grind out stump	To facilitate development
S3	Elder	C1	Fell to ground level and grind out stump	To facilitate development
S4	Elder	C1	Fell to ground level and grind out stump	To facilitate development
T5	Purple plum	C1	Fell to ground level and grind out stump	To facilitate development

NOTE: Wildlife & Habitat Protection Guidelines
The tree work specifications included within this report do not provide an exemption from the requirements to comply with the Wildlife and Countryside Act 1981, the Habitats Regulations 1994 and the Countryside and Rights of Way Act 2000, or any acts offering protection to wildlife. Of particular note is the protection offered to bats, birds and their nests, whilst being built or in use. It must be noted that failure to comply with the Acts may result in a criminal prosecution.

8.0 Communication, Monitoring and Compliance

8.1 in ensuring that tree protections specifications as highlighted within this method statement are closely adhered to at all times, it is important to set out for the long term of the development, communication details for key individuals and tasks that require monitoring.

8.2 The key individuals appointed for advising and complying with Tree Protection specifications must adhere to the following at all times:

- Relevant parties / key individuals must be advised of any changes in personnel or contractor during the development process.
- Relevant parties / key individuals must be responsible for relaying information regarding tree protection within work force where deemed applicable / relevant

8.3 For all tree protection measures these must be considered as sacrosanct and should not be removed or altered without prior written consent from the Local Authority tree officer and/or consulting arboriculturist.

8.4 The local authority arboriculturist will have free access to the site and forward any concerns / recommendations directly to the consulting arboriculturist.

The following individuals and organisations are central to the delivery of the scheme in relation to the tree protection measures it requires:

CONSULTING ARBORICULTURIST
Name - Marcus Foster MArborA
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Contact - Marcus Foster
Email - mail@marcus-foster.com

LONDON BOROUGH OF CAMDEN - TREE OFFICER

Name - Arboricultural Services - London Borough of Camden
Telephone - 020 7974 5939
Contact - Nick Bell - Tree Officer
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Appendices
Appendix A

Tree Survey Schedule
(BS5837:2012)

50 Belsize Park Gardens
London
NW3 4ND

Colour Key: BS5837: 2012 (see Section 2.6)

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

Three Survey Key: BS5837: 2012

- Number: an identity number which cross-references locations shown on the plan in Appendix A with the schedule in Appendix B.
- Species: listed by common names
- Tree Height: height in metres (m)
- Tree Spread: spread in metres (m)
- Stem diameter: measured in millimetres (mm) and taken at 1.5m above ground level
- Age Class: Y (young); EM (early-mature); M (mature); OM (over-mature)
- Vigour: G (good); F (fair); P (poor); D (dead)
- Structural Condition: G (good); F (fair); P (poor); D (dead)
- General Condition Specific comments relating to each tree
- Estimated Remaining Contribution (years)
- BS5837 Category Grading
- Protection Distance m2 Area (where applicable – BS5827: 2012)
- Protection Distance Radius (where applicable – BS5827: 2012)

BS5837:2012 TREE SURVEY
50 Belsize Park Gardens, London, NW3 4ND
BS5837 Tree Schedule (BS5837:2012) - 24.09.21

Tree No	Species	Height (m)	DBH (mm)	Spread (m)	Age	Structural Condition	Vitality	BS5837 (2012) Rating	Remaining Contribution (years)	Comments / Structural Condition	Root Protection Area (RPA) m2	Root Protection Area (RPA) Radius (m)
T1	Silver birch	12	270	N: 3 E: 4 S: 4 W:4	SM	G	G	B1	20 years +	Sound buttress roots; accentuated to west with developing form. Balanced crown shape	32.98	3.2
S2	Elder	5	m/s 200	N: 4 E: 2 S: 2 W:2	M	P	F	C1	10 years +	Partially dead to north; ivy clad to 3m height. Growing from boundary wall	12.57	2.0
S3	Elder	4	180	N: 1 E: 1 S: 1 W:3	M	P	F	C1	10 years +	Growing from boundary wall; poor form, one-sided crown to west	14.66	2.2
S4	Elder	4	180	N: 2 E: 1 S: 1 W:2	M	P	F	C1	10 years +	Lean to west; growing from boundary wall	14.66	2.2
T5	Purple plum	7	260	N: 1 E: 2 S: 4 W:4	EM	G	F	C1	10 years +	Lean to south with accentuated buttress roots. Absent crown to north; over-extended to south and west growing on existing structure. Western crown (upper) climber clad	30.59	3.1
T6	Bay laurel	5	90	N: 1 E: 1 S: 2 W:1	Y	F	F	C1	10 years +	Lean to south east; young with limited form	3.66	1.1
T7	Leyland Cypress	12	420	N: 4 E: 3 S: 4 W:1	EM	P	F	C2	10 years +	Screening tree; storm damage to east at 7m height; remains in tree to east. One-sided crown, absent to east	79.81	5.0
T8	Leyland Cypress	12	410	N: 4 E: 1 S: 4 W:3	M	F	F	C2	10 years +	Tree growing 0.5m from T7; one-sided crown to west. Lapsed management. Minor storm damage from branch failure within T7	76.06	4.9
T9	Bay laurel	5	90	N: 1 E: 1 S: 1 W:1	Y	F	F	C2	10 years +	Lean to west; young with limited form	3.66	1.1
T10	Goat willow	11	300 (e)	N: 3 E: 3 S: 4 W:3	EM	F	F	C2	10 years +	Off site. Lean to east; over-extended with poor management. Overhang of 2m branch lengths (sub 25mm diameter) at 2-5m height.	40.72	3.6

Tree No	Species	Height (m)	DBH (mm)	Spread (m)	Age	Structural Condition	Vitality	BS5837 (2012) Rating	Remaining Contribution (years)	Comments / Structural Condition	Root Protection Area (RPA) m2	Root Protection Area (RPA) Radius (m)
T11	Common lime	14	500 (e)	N:4 E: 4 S: 4 W:4	EM	F	G	B2	20 years +	Off site.To north and west of historic boundary wall. No overhanging crown to site	113.11	6.0
T12	Norway maple	10	250 (e)	N: 4 E: 4 S: 3 W:3	SM	F	F	C1	10 years +	Off site. Sited o north of historic boundary wall. Asymmetric crown dominant north to south. Overhang of 2m branch lengths (sub 25mm diameter) at 2-7m height.	28.28	3.0
T13	Sycamore	11	400 (e)	N: 3 E: 4 S: 3 W:4	SM	F	F	B1	20 years +	Located off site to north. Ivy clad to north east, developing form	72.39	4.8
S14	Cotoneaster	4	m/s 100	N: 1 E: 2 S: 2 W:1	SM	P	P	U	Less than 5 years	Off site multi-stem shrub, largely dead	/	/
S15	Privet	4	m/s 100	N: 1 E: 2 S: 3 W:2	SM	F	F	C1	10 years +	Lapsed hedge / shrub with minor overhang to site, historically managed, lapsed 2 years	3.14	1.0
T16	Holly	3	m/s 100	N: 1 E: 1 S: 1 W:1	Y	F	F	C1	10 years +	Off site to north east; understory tree with managed form. No overhang to site	3.14	1.0
T17	Sycamore	14	500 (e)	N: 4 E: 5 S: 4 W:4	SM	F	F	B1	20 years +	Off site to north east; ivy to 5m height with limited management history. Balanced crown - limited overhang to site (upper crown by up to 1.5m only)	113.11	6.0
T18	Pear	7	300 (e)	N: 2 E: 3 S: 2 W:2	M	F	F	C1	10 years +	Off site to east; reduced form. No overhang to site	40.72	3.6
T19	False acacia 'Frisia'	9	200 (e)	N: 3 E: 3 S: 3 W:3	SM	G	G	B1	20 years +	Off site to east; developing form	18.1	2.4
T20	Sycamore	13	550 (e)	N: 3 E: 3 S: 3 W:3	M	F	G	C1	20 years +	Off site to east. Major limb removed at 2.5m to east (unable to inspect) - cavity evident with extent unknown. Growing 300mm from boundary wall. Reduced / managed within past 12-18 months with fair growth from high pollard points at 6-12m height.	136.87	6.6
T21	Leyland Cypress		300 (e)	N: 2 E: 2 S: 3 W:2				C1	10 years +	Understorey form with lean to south	40.72	3.6

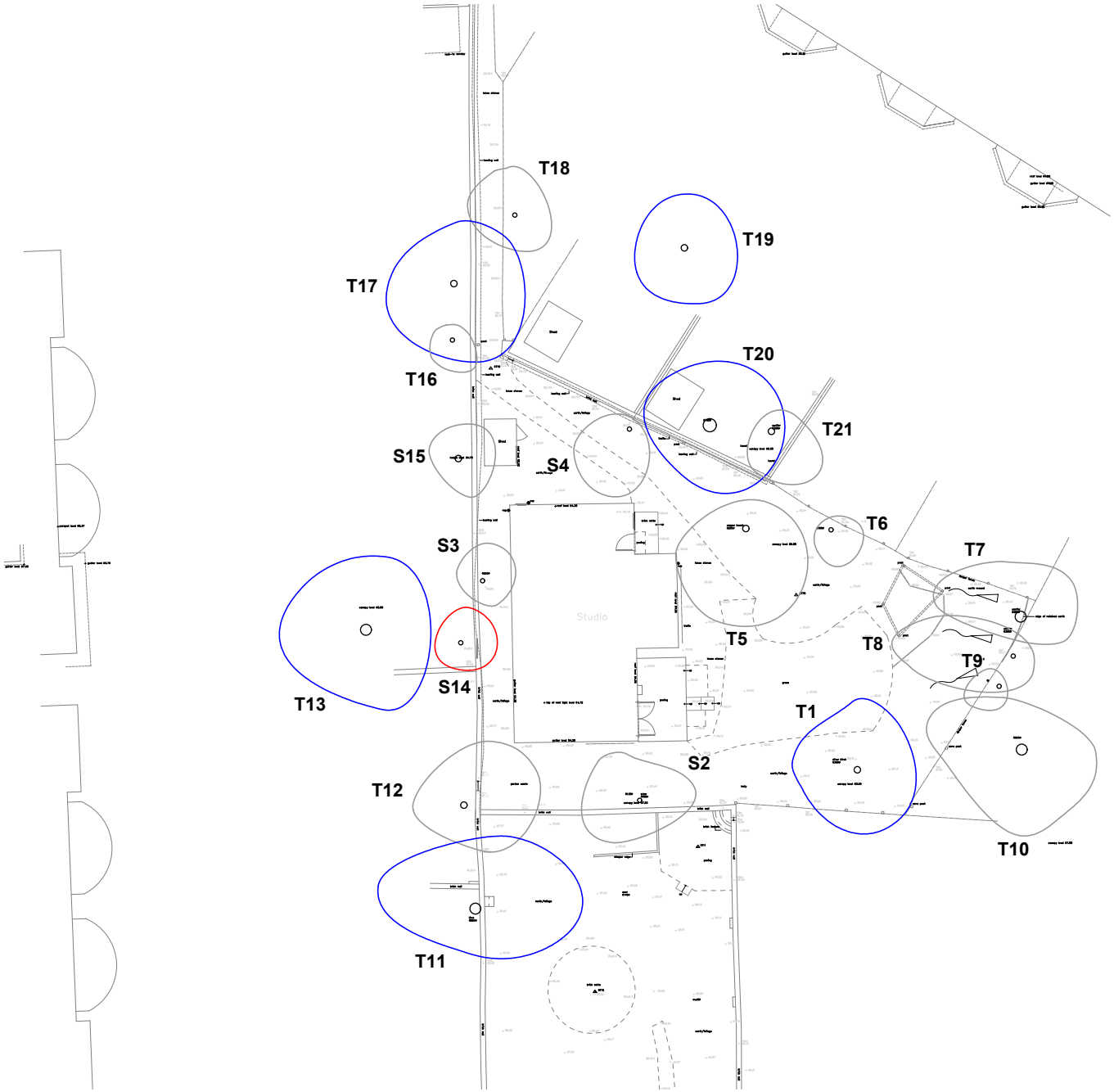
Appendix B

Tree Survey Plans
BS5837:2012

50 Belsize Park Gardens
London
NW3 4ND

Colour Key: BS5837: 2012 (see Section 2.6)

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



KEY

	CATEGORY A
	CATEGORY B
	CATEGORY C
	CATEGORY U
	RPA
	RPA INCURSION
	SHADING ARC

BS5837 (2012) Tree Survey Notes

1. In accordance with BS5837(2012) this drawing is a colour coded schedule and should not be read in black and white

2. If received electronically it is the recipients responsibility to print this drawing to correct scale. Only written dimensions should be used where not printed to scale.

3. This drawing should be read in conjunction with all other relevant drawings and specifications

4. Marcus Foster Arboricultural Design & Consultancy accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided

5. Off site trees have been plotted based on site visit survey and locations are not based upon topographiccal survey

NOTE: Tree survey locations based on previous undertaken topographical surveys for design issue and additional GIS mapping has not been undertaken for the purposes of this survey

Revisions

Rev.	Date		Checked
/	29.09.2021	ISSUED FOR INFORMATION	MF

JOB TITLE	50 Belsize Park Gardens, London, NW3 4ND
CLIENT	Cara Horwich
DWG TITLE	Existing Tree Survey Plan
SCALE	1:200 @ A3
DATE	SEP 2021
JOB NO	AIA/MF/0144/21
DWG NO.	T001

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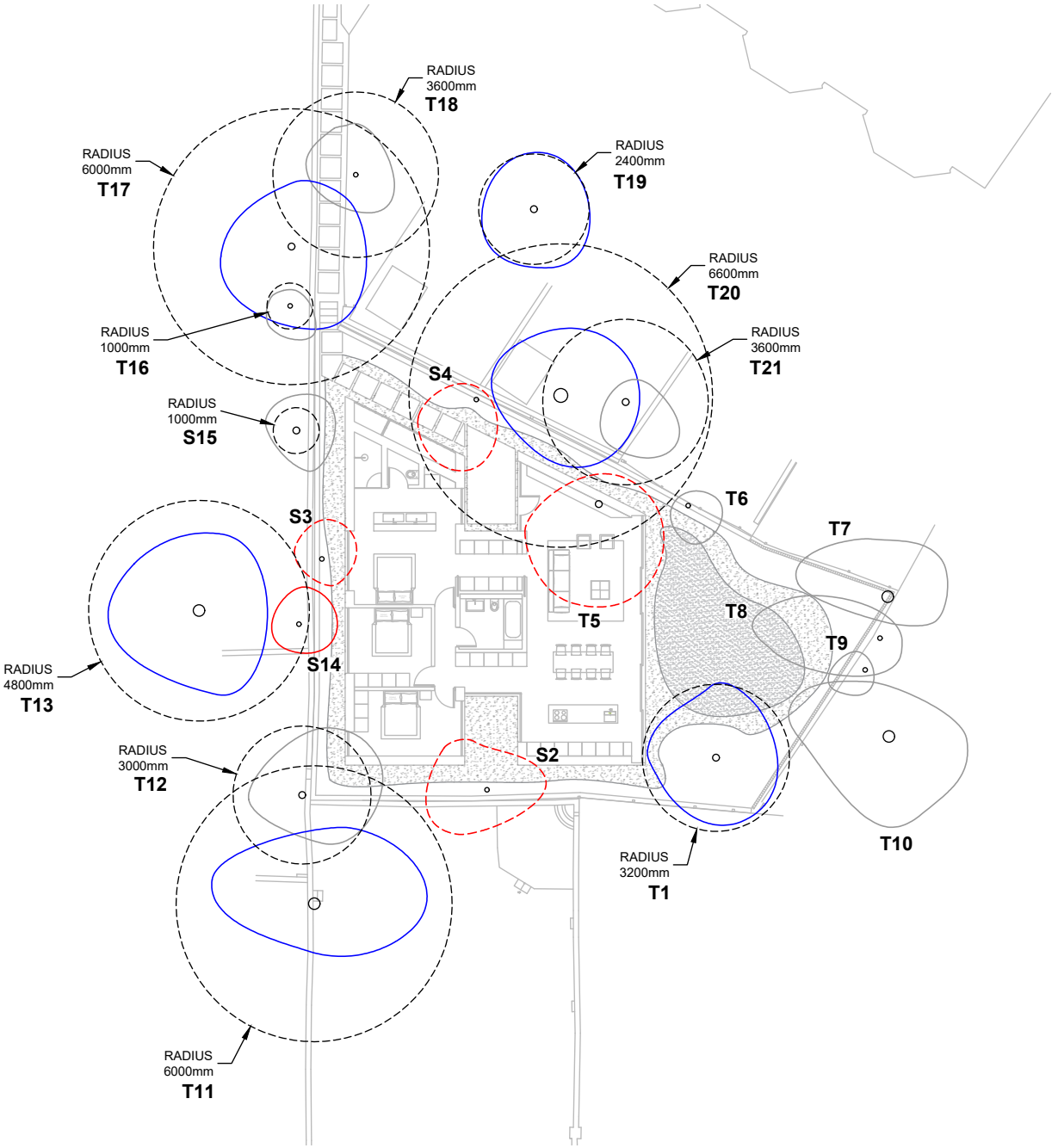

KEY

	CATEGORY A
	CATEGORY B
	CATEGORY C
	CATEGORY U
	REMOVED TREES
	RPA
	RPA INCURSION
	SHADING ARC

BS5837 (2012) Tree Survey Notes

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5. Off site trees have been plotted based on site visit survey and locations are not based upon topographiccal survey

NOTE: Tree survey locations based on previous undertaken topographical surveys for design issue and additional GIS mapping has not been undertaken for the purposes of this survey

Revisions

Rev.	Date		Checked
/	29.09.2021	ISSUED FOR INFORMATION	MF
/	04.07.2022	ISSUED FOR INFORMATION	MF

JOB TITLE: 50 Belsize Park Gardens, London, NW3 4ND
CLIENT: Cara Horwich

DWG TITLE: Tree Constraints Plan

SCALE: 1:200 @ A3
DATE: SEP 2021

JOB NO: AIA/MF/0144/21
DWG NO.: T002

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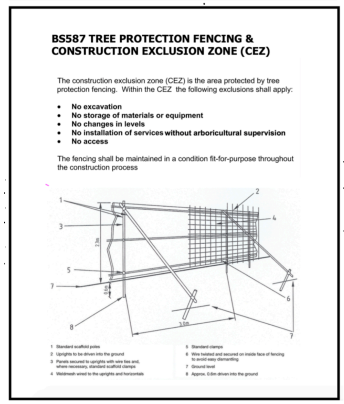

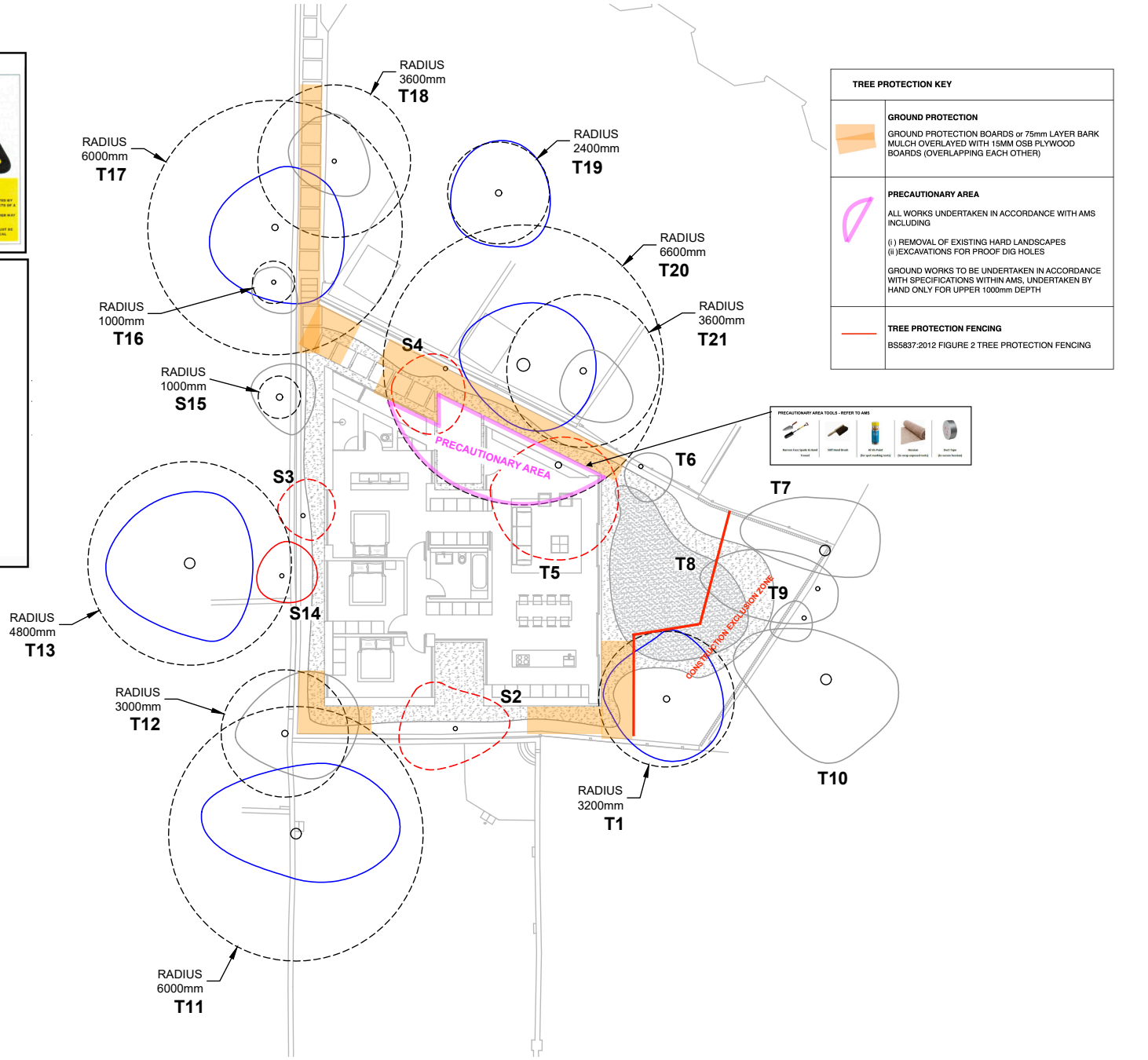

TREE PROTECTION KEY

	GROUND PROTECTION GROUND PROTECTION BOARDS or 75mm LAYER BARK MULCH OVERLAYED WITH 15MM OSB PLYWOOD BOARDS (OVERLAPPING EACH OTHER)
	PRECAUTIONARY AREA ALL WORKS UNDERTAKEN IN ACCORDANCE WITH AMS INCLUDING (i) REMOVAL OF EXISTING HARD LANDSCAPES (ii) EXCAVATIONS FOR PROOF DIG HOLES GROUND WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH SPECIFICATIONS WITHIN AMS, UNDERTAKEN BY HAND ONLY FOR UPPER 1000mm DEPTH
	TREE PROTECTION FENCING BS5837:2012 FIGURE 2 TREE PROTECTION FENCING

KEY

- CATEGORY A
- CATEGORY B
- CATEGORY C
- CATEGORY U
- REMOVED TREES
- RPA
- RPA INCURSION
- SHADING ARC

BS5837 (2012) Tree Survey Notes

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NOTE: Tree survey locations based on previous undertaken topographical surveys for design issue and additional GIS mapping has not been undertaken for the purposes of this survey

Revisions

Rev.	Date		Checked
/	29.09.2021	ISSUED FOR INFORMATION	MF
/	04.07.2022	ISSUED FOR INFORMATION	MF

JOB TITLE	50 Belsize Park Gardens, London, NW3 4ND
CLIENT	Cara Horwich
DWG TITLE	TREE PROTECTION PLAN (TPP)
SCALE	1:200 @ A3
DATE	SEP 2021
JOB NO	AIA/MF/0144/21
DWG NO.	T003

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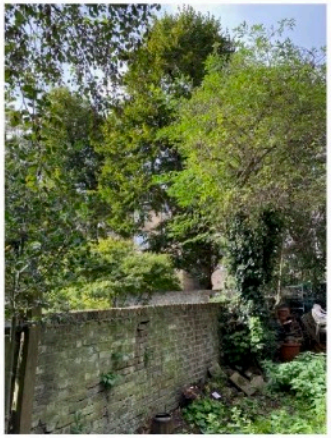
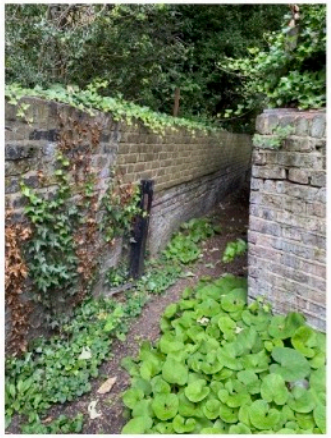
Appendix C:
Site Photographs

50 Belsize Park Gardens
London
NW3 4ND

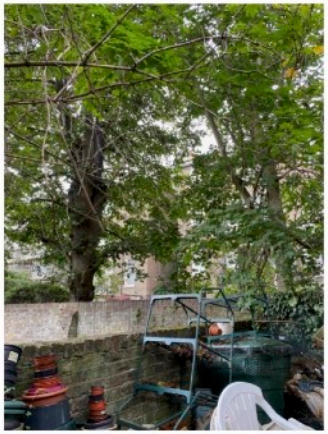
APPENDIX C: TREE SURVEY PHOTOGRAPPHS



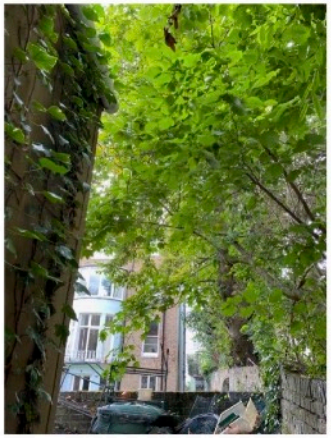
Tree T11 to the north west of the site - neighbouring land



Existing access / boundary walls with leaning form / dilapidated to the south of tree T17 as viewed in a north easterly direction

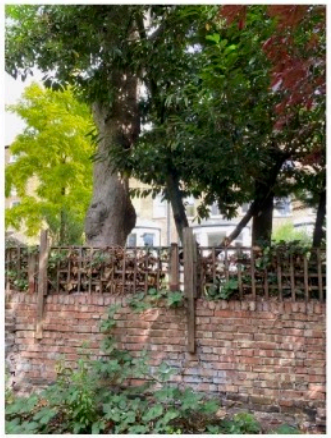


Tree T11 to the north west of the site - neighbouring land



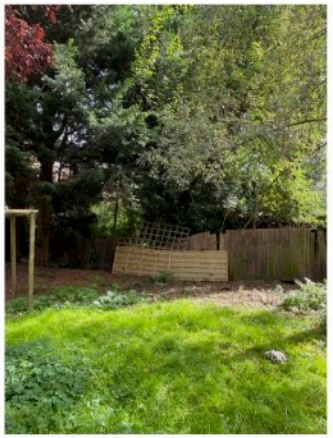
Tree T12 off site to the north as viewed in a westerly direction

Tree T6 and T20 (off site) as viewed in an easterly direction

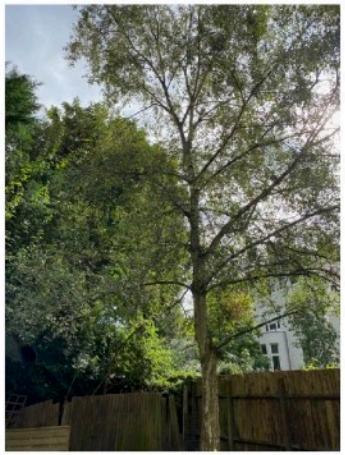


Tree T20 & T22 (off site) as viewed in an easterly direction

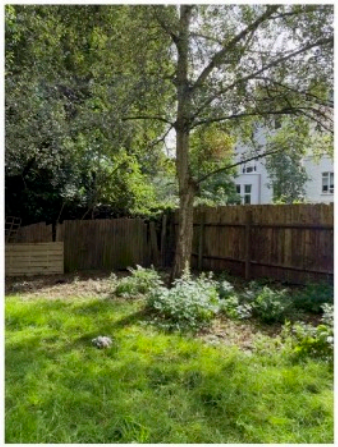
Tree T16 & T17 (off site) as viewed in an easterly direction



Off site Goat willow, tree T10 as viewed in a southerly direction

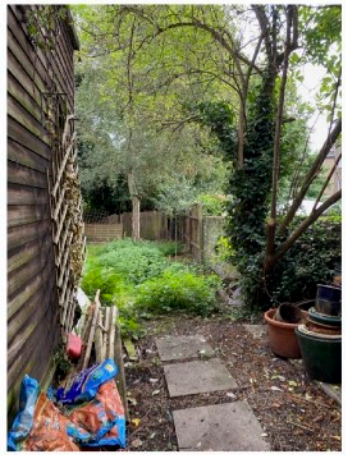


Tree T1 as viewed in a south westerly direction

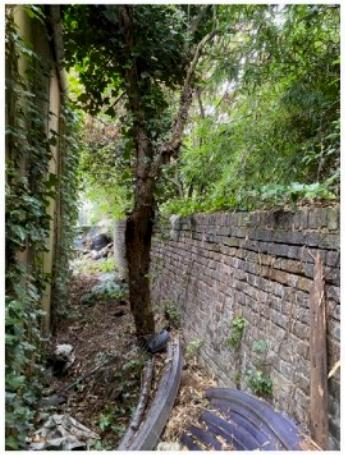


Base and initial main stem of tree T1 as viewed in a south westerly direction

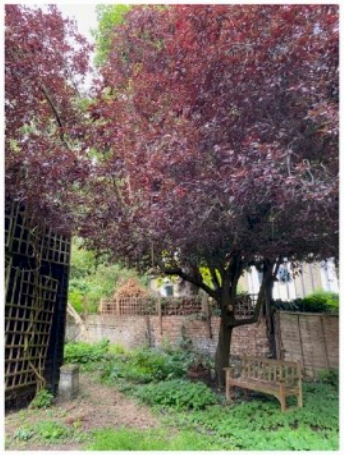
Shrub S2 and off site trees to north beyond as viewed in a northerly direction



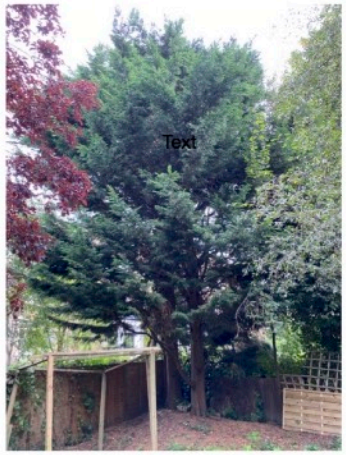
Shrub S2 and tree T1 beyond as viewed in a southerly direction



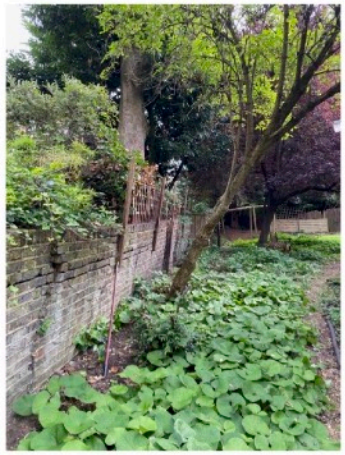
Shrub S3 as viewed in a westerly direction growing from boundary wall



Purple plum tree T5 as viewed in a north easterly direction



Leyland Cypress trees T7 & T8 as viewed in a southerly direction



Shrub S2 and tree T6 beyond as viewed in a southerly direction

All Photographs taken September 2021

Appendix D:
Tree Protection Notice

Generic Tree Protection Notice
(BS5837: 2012):

Notice to be clearly shown on site where fencing constructed
AT ALL TIMES

Appendix E
Tree Protection Fencing Specifications

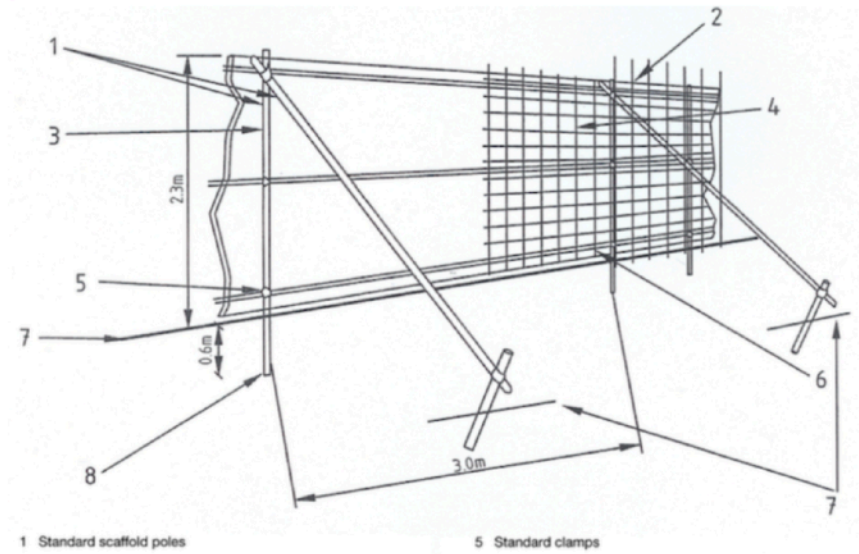
Figure 2: BS5837:2012

BS587 TREE PROTECTION FENCING & CONSTRUCTION EXCLUSION ZONE (CEZ)

The construction exclusion zone (CEZ) is the area protected by tree protection fencing. Within the CEZ the following exclusions shall apply:

- **No excavation**
- **No storage of materials or equipment**
- **No changes in levels**
- **No installation of services without arboricultural supervision**
- **No access**

The fencing shall be maintained in a condition fit-for-purpose throughout the construction process



1 Standard scaffold poles
2 Uprights to be driven into the ground
3 Panels secured to uprights with wire ties and, where necessary, standard scaffold clamps
4 Weldmesh wired to the uprights and horizontals
5 Standard clamps
6 Wire twisted and secured on inside face of fencing to avoid easy dismantling
7 Ground level
8 Approx. 0.6m driven into the ground

Appendix F: References

1. BS5837: British Standard: Trees in relation to construction - Recommendations, British Standard (2012)

2. Principles of Tree Hazard Assessment and Management, Lonsdale, D. (Department for Transport, Local Government and the Regions, 1999)

3. The Body Language of Trees, Mattheck, C. and Breloer, H. (HMSO, 1994)

4. Trees in Britain, Philips, R. (Pan Books, 1978).

5. Diagnosis of Ill Health in Trees, Strouts, R. and Winter, (TSO, 1994)

6. NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2), (November 2007)

PREPARED BY MARCUS FOSTER MArborA
END OF REPORT _ Page 34/34