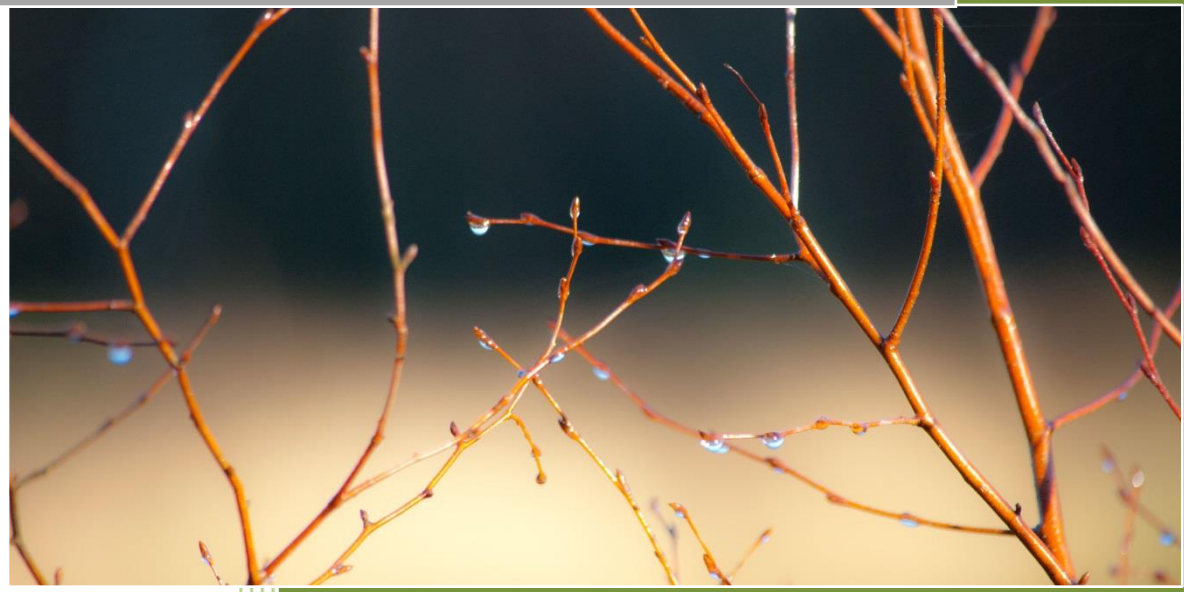
BS5837 Arboricultural Impact Assessment



Garden Flat, 117 Priory Road, London, NW6 3NN

Client: **Julius Kirchner**

Job Reference: 02607Rv2

Consultant: Keiron Hart (BSc Hons, C.Env, F.Arbor.A, MICFor, MEWI)

Tamla Trees
consulting arborists

April 2017

Contents

1. Executive Summary

1.1 Tamla Trees ltd has been appointed by Julius Kirchner to provide advice on the arboricultural issues relating to the installation of an Ecospace garden room. We surveyed the site on the 26th January 2017. The survey accorded with BS5837:2012 "Trees in relation to design, demolition and construction – Recommendations". The Ecospace studios are prefabricated panel structures assembled by hand and with a typical installation time of 10 days/ 2 weeks.

1.2 The predominant amenity trees T3 (Privet) and T4 (Lime) visible to the front of the property. 2 further trees T1 (Mulberry) and T2 (Prunus) are located within 3rd party gardens to the rear and of minimal wider amenity.

1.3 The proposal has a very minimal encroachment in to the Root Protection Area (RPA) T1 (Mulberry). The encroachment constitutes less than 0.5% of the trees total RPA area and will therefore have no discernible impact on this tree. Access will be from the front past T3 & T4 over an existing hard standing footpath.

1.4 No trees will be removed to facilitate the installation. Minor tipping back of branches from T1 (Mulberry) to provide 1m clearance from the new structure may be required. The exact level of work will be ascertained when the proposal is 'set out' on site.

1.5 A water and electric service connection will be dug through the garden but will not encroach on any RPA areas.

1.6 Protective Herras panel fencing will be used to ensure no working overspill towards T2. Panel shuttering will protect T3 & T4 for front access.

1.7 At the time of writing Camden Council have not yet responded to our statutory search. The client advised the site is located within a Conservation Area. This report is based on the client plans ref: KIR.ECO.01B[15] and associated foundation pad drawing ST.02.SO

2. Statutory Protection

2.1 At the time of writing Camden Council have not yet responded to our statutory search:

Conservation Area Status	
Is the site located within a Conservation Area?	Yes (advised by client)
Notes: (i)All trees larger than 7.5cm diameter at 1.5m above ground level are subject to regulations within a Conservation Area. Exemptions apply for trees which are dead and dangerous but clarification before any tree works is advised. A notification is required in many circumstances.	
Tree Preservation Order Status	
Are inspected trees subject to a TPO?	Unknown
Type of TPO	~~**Area**~~
	~~**Individual**~~
	~~**Group**~~
	~~**Woodland**~~
TPO Reference	-
Date TPO Made	-
Notes: (i) The type and details of any TPO determine which trees are 'protected'. Exemptions apply for trees which are dead and dangerous but clarification before any tree works is advised. An application may be required before undertaking works. (ii) At the time of writing Camden council have not yet confirmed the levels of statutory protection.	

3. Terms of Reference

3.1 BS5837:2012 'Trees in relation to design, demolition and construction – recommendations'

3.2 BS3998:2010 'Tree work – recommendations'

3.3 NJUG 4 – National Joint Utilities Group "Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees. Volume 4, issue 2. London: NJUG 2007" To include Operatives Hand-out Guidance

3.4 BGS Open Source Soil Data http://www.bgs.ac.uk/nercsoilportal/maps.html

4. The Trees

4.1 The trees can be summarised as follows:

BS 5837 Cat	A	B	C	U
Specific Trees	-	T3	T1, T2 & T4	-
Total Number	None	1 individual	3 individuals	None

4.2 These tree locations and a summary of their visual contributions can be summarized as follows:

BS 5837 Cat	A	B	C
Private Residential Amenities Providing amenity between properties and contributing to the local tree scape.	-	-	T1 & T2
Priory Road Contributing to the street scene/ treescape	-	T3	T4

4.3 There were no hedges present and as such the 1997 Hedgerow Regulations are not relevant to this project.

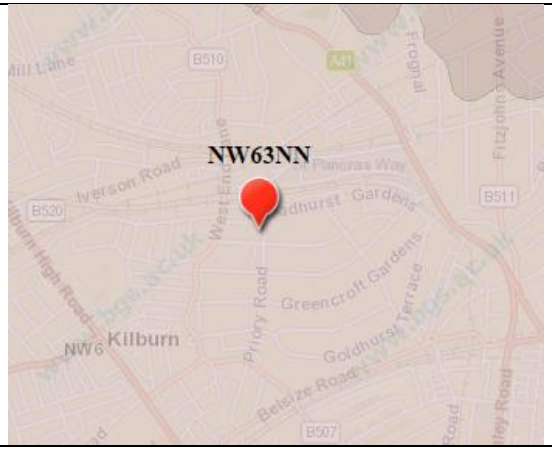
5.0 Arboricultural Impact Assessment

5.1 Site Specific Soils

5.1.1 Soil is an important factor in tree growth and the type of underlying soil can impact on successful integration of new developments.

5.1.2 A free draining sandy soil containing sand/gravel is likely to lead to water being accessible in the upper horizons during the growing season and available at greater depths and trees will generally be forced to explore a larger volume/ depth on such soils. The structure of such soil also makes compression more difficult (by heavy construction plant) and root penetration is easier for the trees. By comparison a clay soil is more easily compressed, particularly when wet and compression can have a greater impact on tree health.

5.1.3 As shown below the site is located within what is defined as clay.



Soil Description
London Clay Formation Clay, Silt And Sand. Sedimentary Bedrock formed approximately 34 to 56 million years ago in the Palaeogene Period. Local environment previously dominated by deep seas.

Underlying Soil Material contains Clay	**Yes**
Soil Type increased rooting depth profile?	**No**
Increased risk of soil compaction due to soil type	**Yes**

5.1.4 All comments regarding soils should be verified with onsite geotechnical investigations and laboratory testing with foundation depth and design undertaken by a structural engineer in accordance with the requirements of NHBC Chapter 4.2.

5.2 Root Protection Area (RPA) Incursions

5.2.1 The following incursions into the RPA's of trees to be retained have been identified:

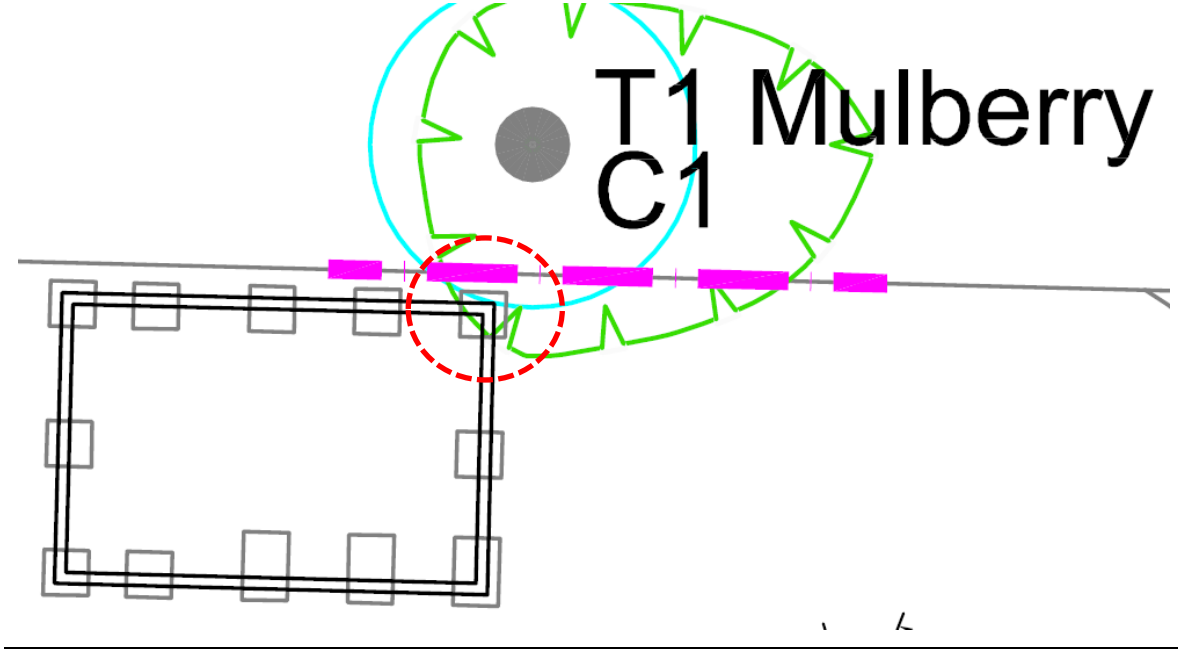
BS 5837 Cat	A	B	C	Summary
RPA Incursion			T1	**Building Foundations** – The proposal places the structure within the RPA areas of this tree. However, the encroachment is extremely minimal at <0.5% of the trees total RPA. 99.5% of the trees RPA therefore remain unaffected and as a result it is likely there will be no discernable impact on the 3rd party tree. **Service**s – A foul water and electric service pipe connection will be dug from the proposal through the middle of the rear garden to connect to the rear of the property. The excavation will be approximately 400mm in depth. It tracks away from T1 and is located outsider the RPA area significantly reducing the potential impact on this tree. No special measures are proposed for its installation relative to trees.

5.3 Tree Loss

5.3.1 No trees will be removed to facilitate the proposed development.

5.4 Foundations

5.4.1 The pad foundation will be located within the RPA of T1 as indicated below:



- **Encroachment is <0.5% of the trees RPA.**
- **99.5% of the trees RPA remain unaffected.**
- **Boundary wall acts as physical barrier to direct damage.**
- **Boundary wall likely to have deflected surface roots in the vicinity of the proposed pad location.**

Fig 1 – Proposed pad installation relative to T1 (Mulberry)

5.4.2 To address concerns regarding foundation design within the RPA area of retained trees Ecospace utilise a limited pad foundation. Single pad within the RPA of T1 excavated by hand:

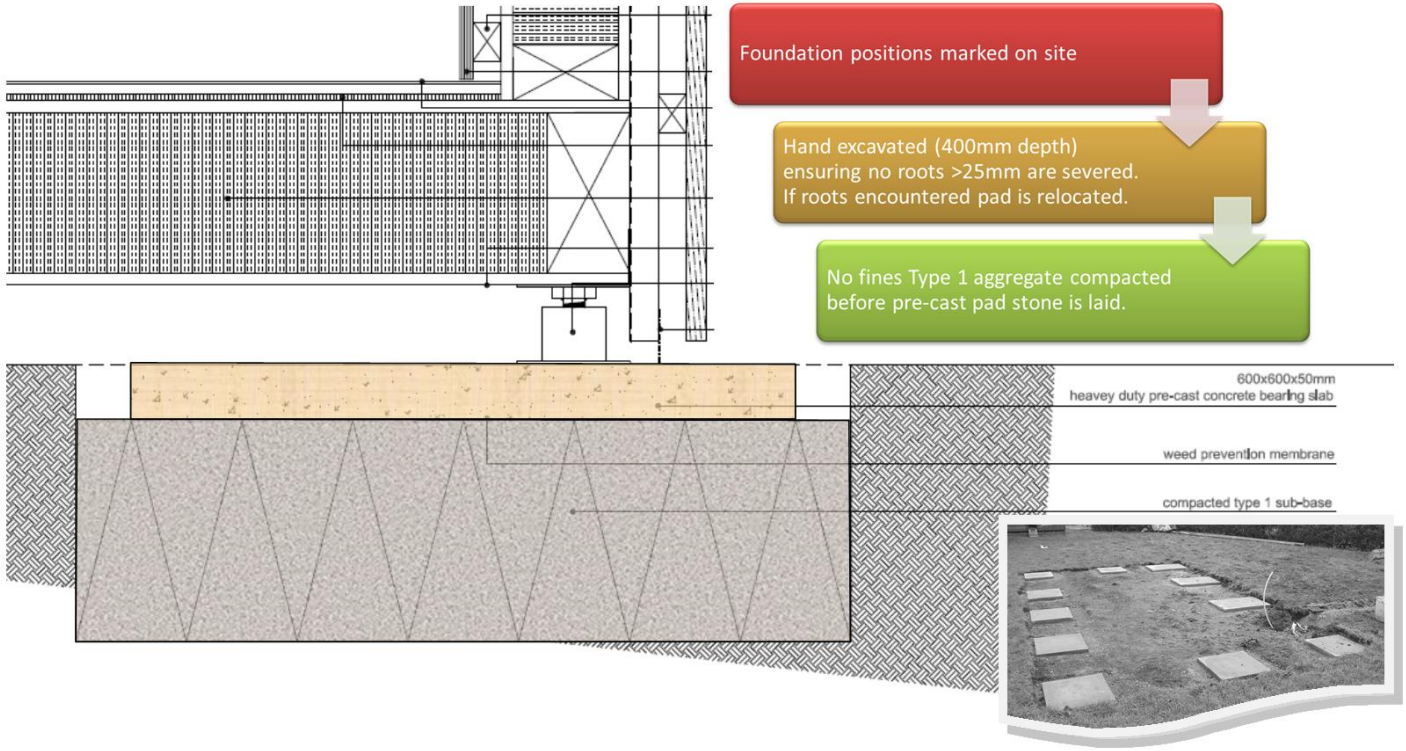


Fig 2 – Typical pad detail with installation (inset). This approach removes the need for a 'strip' foundation reducing the impact on underlying roots. Note: T1 encroachment so minimal that foundations unlikely to have any negative impact regardless of proposed type.

5.4.3 All hand dug pad excavations are lined with a non-permeable membrane prior to the wet pour of the pad stone. If the pad stone is a precast stone (depending on site conditions/ availability) there is no need to line the pad stone excavations.

5.5 Surfaces near Trees

5.5.1 No new surfaces within retained tree RPA's are proposed.

5.5.2 The existing pathway surface in this area limits the risk of adverse ground compaction as materials/ panels are brought on to the site.

- **Existing side access point.**
- **Hard surface present already removes the risk of compaction to underlying soil close to T3 & T4**

Fig 3 – Existing side access

5.6 Site Service Provision

5.6.1 The proposal will draw on the existing site services and any connecting trench for electric or water will run through the middle of the rear garden to locate it away from retained tree RPA areas.

5.6.2 To limit maintenance impact to the proposal from leaf drop given the proximity/ overhang of trees it is recommended that gutter guards be installed.

Fig 4 - Suitable gutter guards (2 types shown above) should be fitted to ensure that leaf drop from adjacent trees does not block new guttering leading to potential pressure for tree works.

5.7 Ground Level Changes & Demolition

5.7.1 No ground level changes within the RPA areas of retained trees are proposed other than the installation of the pad foundations detailed elsewhere.

5.7.2 No demolition within tree RPA areas is required.

5.8 Tree Shading of Proposal

5.8.1 The nature of the design and lack of mature trees is such that there is no shading issues associated with this project.

5.9 Arboricultural Project Supervision

5.9.1 Most damage to trees on developments sites is caused inadvertently and to ensure continued protection during development a system of site monitoring is normal. However, the minimal nature of the proposed construction combined with short duration (10 days to 2 weeks) means site supervision is considered disproportionate to the real pressures on retained trees.

5.9.2 The Local Planning Authority is invited to secure a schedule by way of Planning Condition in the event they do not agree with this approach.

Appendix 1 – BS5837 Survey Key

BS 5837 Cat	Description
A	Those of high quality and value: in such a condition as to be able to make a substantial contribution (> 40 years)
B	Those trees of moderate quality and value: those in such a condition as to make a significant contribution (> 20 years)
C	Those trees of low quality and value: currently in an adequate condition to remain until new planting could be established (> 10 years)
U	Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed regardless of development (< 10 years)

Note: Sub categories are denoted in the tree survey data (A1, B1, C2 etc.). You are referred to BS5837 for further detail if required.

Tree No.	T (tree), G (group), H (hedge), W (woodland) + Ref No.
Species	Common Name
Ht (m)	Measured height in metres
DBH (m)	Diameter at 1.5m above ground level
No of stems	An indication of the trees form @1.5m (1 = single stem, m/s = multi-stemmed)
Branch Spread	In m to cardinal points
Cr Ht Clearance (m)	Overall height of lowest branches from the ground level on side of proposed development
Life Stage	Young, Semi-Mature, Early-Mature, Mature, Over-Mature
General Observations	Observations on the condition of the tree(s)
Tree Work Specification	Proposed tree works in accordance with BS3998
BS Cat	See above
Life Exp	Estimated remaining contribution in years.
RPA Radius(m)	Radius of the trees Root Protection Area measured from the trunk to the edge of the RPA circle in metres

Appendix 2 – BS5837 Survey Data

Tree No.	Species	DBH (m)	No of Stems	Ht (m)	Crown Spread				BS Cat	Age Class	Life Expect	Cr Ht (m)	Observation	Recommendations	RPR (m)
					N	E	S	W							
T1	Mulberry	0.18	M/S	7	2	4.5	2.8	1.5	C1	Mature	20 to 40	1.8	Asymmetric. 3rd party tree.	No works/ minor tipping back of branches to generate 1m clearance if required. Works to accord with BS3998	2.2
T2	Prunus spp	0.3	2	7	2.2	3.8	3	2.3	C1	Mature	20 to 40	2.5	3rd party tree. Asymmetric.	No works	3.6
T3	Privet	0.39	1	4.8	2.2	2.9	3.5	2.6	B1	Mature	20 to 40	1.7	Extremely unusual specimen for species which is more commonly a hedge.	No works	4.7
T4	Lime	0.2	1	3	1	1	1	1	C1	Mature	20 to 40	1.7	Managed as pollard. Feature but small.	No works	2.4

Appendix 3 – Tree Works Schedule

NOTE: All tree works to be undertaken in accordance with BS 3998:2010 'Tree work - Recommendations'.

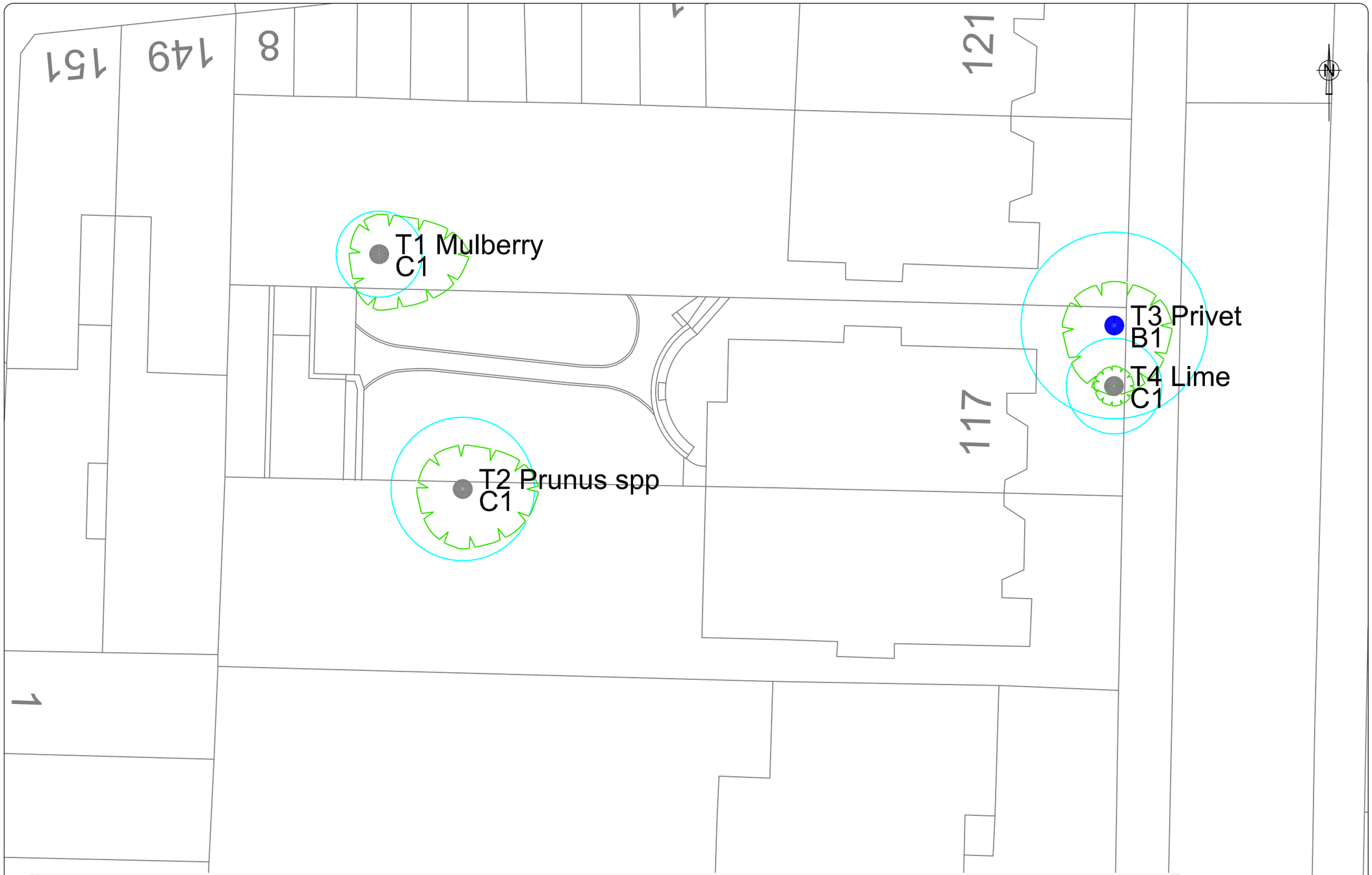
Tree Surgery

Tree No.	Species	Proposed Tree Works	BS Cat
T1	Mulberry	No works/ minor tipping back of branches to generate 1m clearance if required. Works to accord with BS3998	**C1**

Proposed Removal (None)

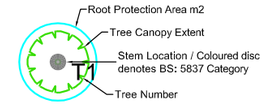
Tree No.	Species	Proposed Works	Observations	BS Cat
		NONE		

Appendix 4 - Tree Constraints Plan



Tree No	Species	DBH	Height	Age Class	Life Exp	Observations	BS Cat	RPR
T1	Mulberry	0.18	7	Mature	20 to 40	Asymmetric. 3rd party tree.	C1	2.2
T2	Prunus spp	0.3	7	Mature	20 to 40	3rd party tree. Asymmetric.	C1	3.6
T3	Privet	0.39	4.8	Mature	20 to 40	Extremely unusual specimen for species which is more commonly a hedge.	B1	4.7
T4	Lime	0.2	3	Mature	20 to 40	Managed as pollard. Feature but small.	C1	2.4

Tree Survey Drawing Key



See Tamla Trees, Tree Survey for Individual Tree Details

KEY

Please refer to Tamla Trees report for details

- Category A - Trees of high quality
- Category B - moderate quality
- Category C - low quality
- Category U - Dead, Dying or Defect trees with <10 years retention value

RPA - root protection area as defined by Table 2 BS 5837:2012

NOTE Tree positions indicatively mapped due to lack of detailed topographical plan

REV AMENDMENTS DRAWN DATE AUTH'D

PROJECT
117 Priory Road,
London
NW6 3NN

CLIENT
Julius Kirchner

TITLE
Tree Constraint Plan (TCP)

Job	Scale	DRG NO	Revision
02607R	1:200 @ A3	02607P_TCP_01	A
Date 04/04/2017	Type a		

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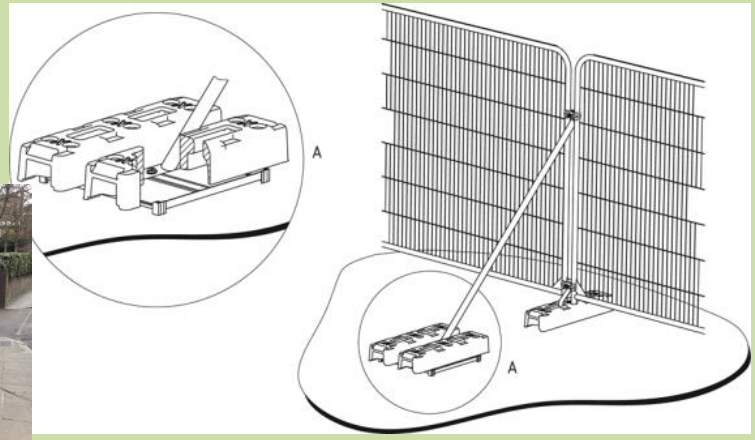
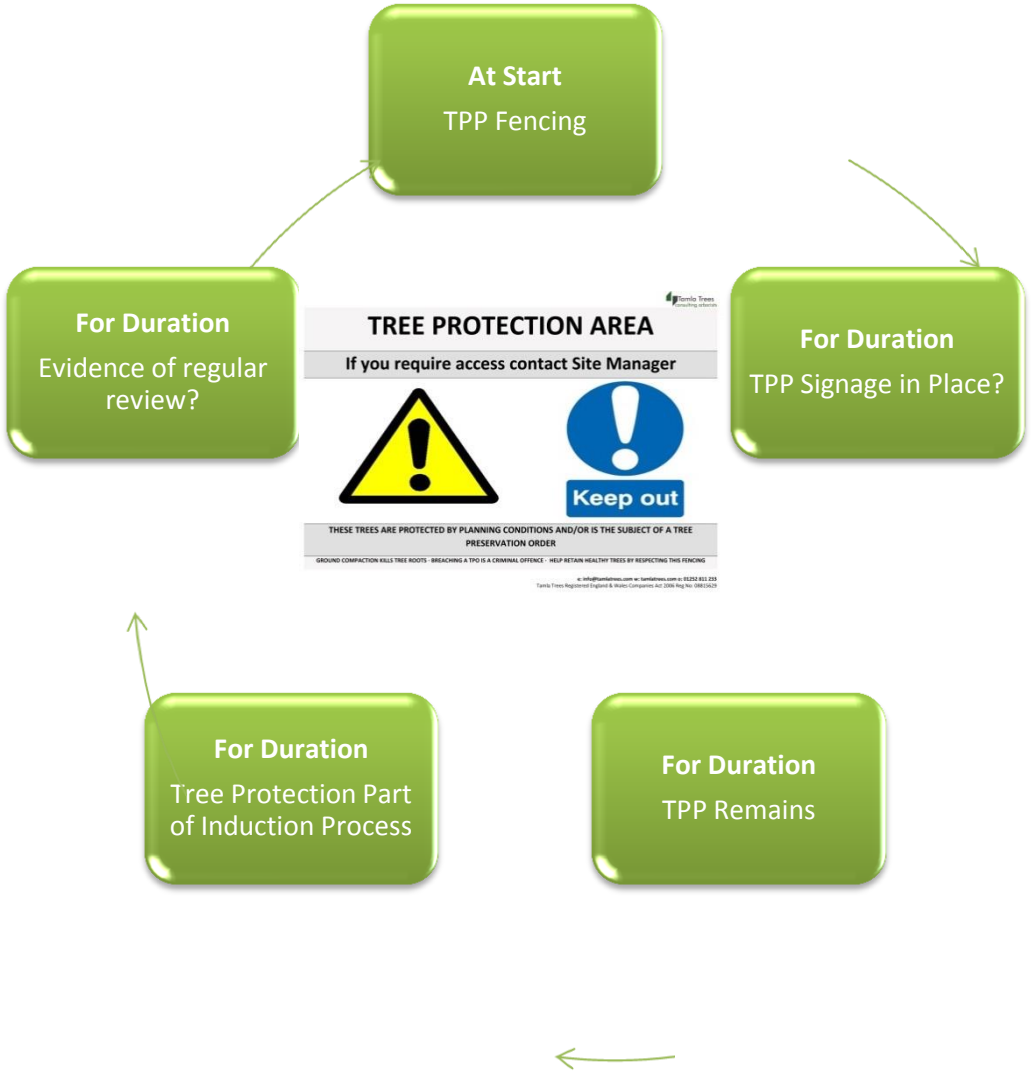
Appendix 5 - Tree Protection Plan

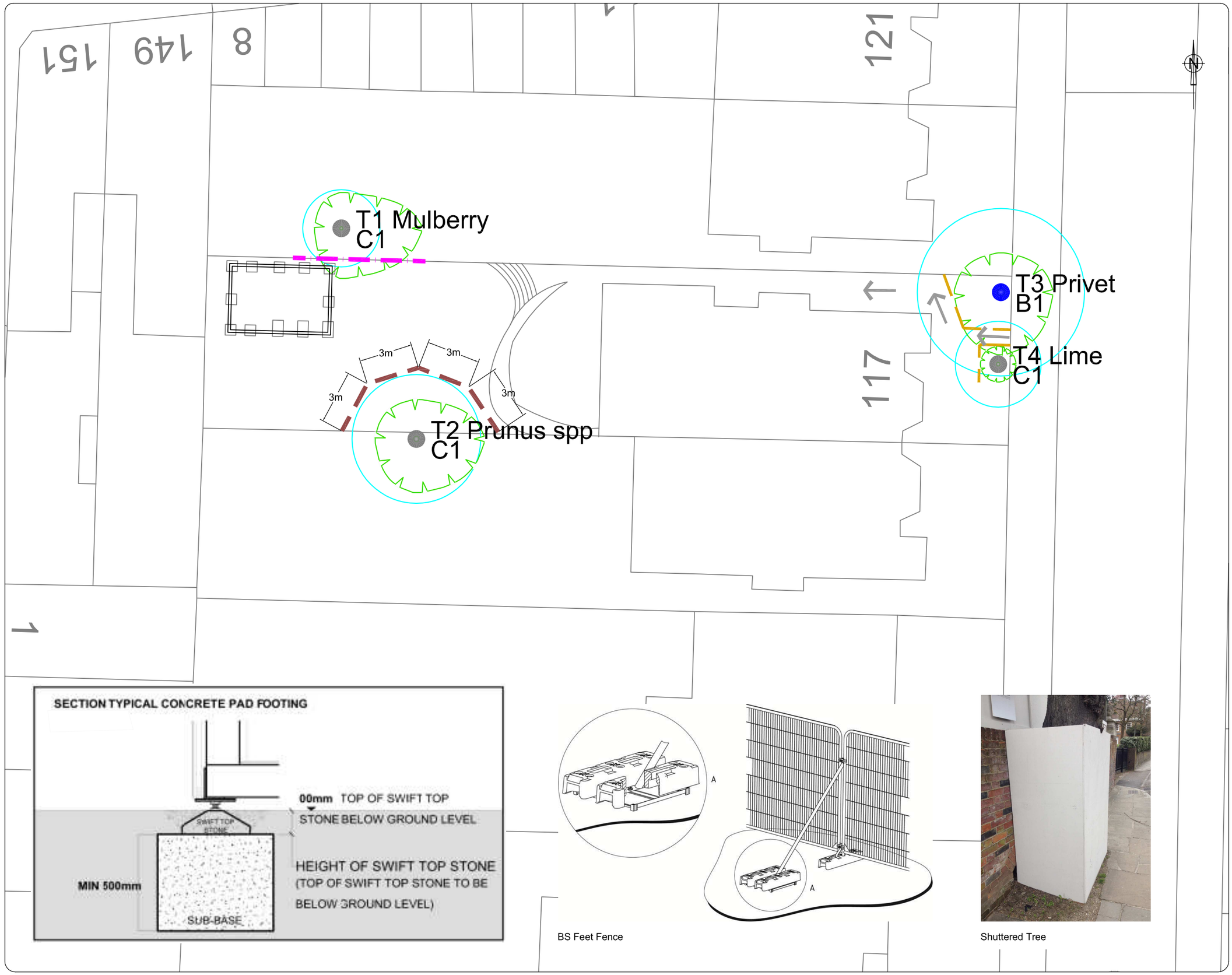
Tree protection is essential to successfully integrate the proposal into the surrounding trees. It is designed to manage the impact on the underlying soil and rooting environment. It must therefore be installed prior to any further site activity. Even apparently minimal tracking of the soil near trees has the capacity to irretrievably modify the soil environment to the detriment of tree health and stability.

All our fencing specifications accord with advice and guidance within BS 5837. Modifications to fence types are possible but should be discussed prior to implementation. In all other instances the form detailed below should be shown. This offers the best protection to retained trees.

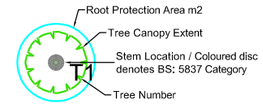
- **All tree protection must be in place prior to any site activities. It is recommended that this fencing is installed prior to any site works (including demolition).**
- **To be effective Tree Protection must remain in place for the duration of the development and form part of the site induction process.**
- **To be installed prior to any on site activities.**
- **Shuttering to front and Herras for T2 (rear)**




At Start
TPP Fencing
For Duration
TPP Signage in Place?
For Duration
TPP Remains
For Duration
Tree Protection Part of Induction Process
For Duration
Evidence of regular review?
TREE PROTECTION AREA
If you require access contact Site Manager
Keep out
THESE TREES ARE PROTECTED BY PLANNING CONDITIONS AND/OR IS THE SUBJECT OF A TREE PRESERVATION ORDER
GROUND COMPACTION KILLS TREE ROOTS - BREACHING A TPO IS A CRIMINAL OFFENCE - HELP RETAIN HEALTHY TREES BY RESPECTING THIS FENCING



Tree Survey Drawing Key



See Tamla Trees, Tree Survey for Individual Tree Details

KEY

Please refer to Tamla Trees report for details

- Category A - Trees of high quality
- Category B - moderate quality
- Category C - low quality
- Category U - Dead, Dying or Defect trees with <10 years retention value

- RPA - root protection area as defined by Table 2 BS 5837:2012
- Location of protective fencing - BS 5837 Feet Fence (or similar)
- Tree protection - Plywood Frame 1.2m tall
- Existing boundary acting as protective fencing
- Site access

NOTE Tree positions indicatively mapped due to lack of detailed topographical plan

REV AMENDMENTS DRAWN DATE AUTH'D

BS Feet Fence

Shuttered Tree

PROJECT
117 Priory Road,
London
NW6 3NN

CLIENT
Julius Kirchner

TITLE
Tree Protection Plan (TPP)

Job	Scale	DRG NO	Revision
02607R	1:200 @ A3	02607P_TPP_01	A
Date 05/04/2017	Type a		

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Appendix 6 – Site Photographs

Image 1 – Site access/ clearance and T3 (Privet)

Image 2 – T4 (Lime)

Image 3 –T1 (Mulberry) and existing boundary wall

Appendix 7 – Limitations

Full Legal Disclaimer

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Specific - Trees

All tree inspections, unless specified, have been undertaken from ground level and using non-invasive techniques. Comments contained within the report on the condition and risk associated with any tree relate to the condition of the tree at the date and time of survey. Please note that the condition of trees is subject to change. This change may occur, but is not limited to biological and non-biological factors as well as mechanical/ physical changes to conditions in the proximity of the tree. Trees should be inspected at intervals relative to risk/ target areas and in accordance with relevant HSE guidance. Tamla Trees ltd can provide further information on this matter if required. Where full access to trees (Ivy, materials at base, location on 3rd party land) was not possible Tamla Trees ltd accept no liability for issues that arise.

Please note no statutory control checks have been undertaken (unless specified). Where tree surgery works have been identified these works are based on the assumption that planning is approved, no tree works should be undertaken prior to determination of this application without up to date confirmation of the Tree Preservation Order / Conservation Area Status of the vegetation. All works should be undertaken in accordance with the appropriate Duty of Care. This should include, for example, site specific risk assessments and due diligence inspections for the presence of protected species.

Any comment/ measurements relating to 3rd party trees have been made without full access to the tree(s). Should these trees have any impact on the proposed development we would advise you to instruct us to contact the 3rd party and undertake further detailed inspection work.

A legal Duty of Care requires that any tree works specified in this report should be performed by qualified, arboricultural contractors who have been competency tested to determine their suitability for such works in line with Health & Safety Executive Guidelines. Additionally all works should be carried out according to British Standard 3998 (2010) Recommendations for Tree Work.