Marcus Foster
Arboricultural Design & Consultancy

BA (Hons) | NDArb | AATechcert (ArborA) | EGS.Dip

Arboricultural Survey (BS5837:2012)
& Impact Assessment
incorporating
Outline Method Statement

Site details:

3 Inverforth Close
London
NW3 7EX

Client details:

A.D.A Architecture
Unit 2
Breasy Place
Burroughs Gardens
Hendon
London
NE4 4AT

Date of Report:

12th December 2016

Report Prepared by:

Marcus Foster
BA (Hons) NDArb. TechCert (ArborA) EGS.Dip

Marcus Foster
Arboricultural Design & Consultancy
Tel: + 44 (0) 7812 024 070
Email: marcus@mfdesignconsultancy.com
www.mfdesignconsultancy.com

Contents

1. Introduction

1.1 This report has been commissioned by A.D.A Architecture to survey, assess and provide an Arboricultural Impact Assessment and Method Statement for the trees sited at and within close proximity of the proposed development and associated construction site activities / access.

1.2 A site visit was conducted on Wednesday 30th November 2016 to survey and assess the trees. The weather at the time of inspection was dry and sunny with cold temperatures.

1.3 The tree survey, report and recommendations have been compiled for 11 trees (T1-T11) surveyed within the site (T1), the land to the south within the ownership of The Corporation of London - Hampstead Heath (T2-T9 - excluding *T4*) and the neighbouring property 1 Inverforth Close, London, NW3 (T4, T10 & T11)

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 trees describing size, condition and surroundings are found within this appendix.

1.5 The trees located within the site are shown in site plan, *Appendix B.1 - B. 4*, and these correspond to the tree survey results table, *Appendix A*.

1.6 Photographs of the trees can also be found in *Appendix C*.

1.7 This report and the opinions within it have been produced by Marcus Foster, a qualified Arboriculturist holding a National Diploma in Arboriculture, and the Arboricultural Association's Technicians Certificate 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.

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

2. Survey Details and Scope

2.1 The site survey included the 11 trees (T1-T11) as shown in the survey, *Appendix A,* and also highlighted on the site plans*, Appendix B.1* and *B.2.*

2.2 The trees were surveyed from ground level from within the main driveway area of Inverforth Close and the grounds of Hampstead Heath (which directly adjoins the driveway of Inverforth Close) London, NW3. The diameter of the trunks have been measured using a DBH tape. The height of the trees have been estimated due to the difficult topography for the use of a clinometer. For trees T4, T10 & T11 the diameter of the trunks has 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)
- Physiological Condition: G (good); F (fair); P (poor); D (dead)
- Structural conditions: Specific comments relating to each tree
- Preliminary Management Recommendations
- Estimated Remaining Contribution (years)
- BS5837 Category Grading
- Protection Distance (if applicable – BS5827: 2012)

2.4 The information contained within the report reflects the condition of the specimens examined at the time of the 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.

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

Tree Survey Summary

2.6 All trees have been survey in accordance with 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.

T3, T4, T5, T7, T8 & T9

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.

T6

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.

T1, T2, T10 & T11

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.

None

3. 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.

3.3 No invasive tools were used during this site survey.

3.4 It should be noted that vegetation including shrubs within this / the neighbouring sites have not been included in the survey and report.

3.5 This report is preliminary and further investigations may be required in order to reach firm conclusions and/or further recommendations for action.

4. Findings and Discussion: Site Overview

4.1 There are 11 (T1-11) trees located within close proximity of the proposed development and associated construction site activities. Tree T1 will be directly affected by the proposed development with the remainder of the trees T2-T11 only affected by the site access / construction process.

4.2 The trees surveyed are located within the London Borough of Camden and are protected by virtue of their location within the Hampstead Conservation Area (T1, T4, T10 & T11) and also their location within The Corporation of London land, Hampstead Heath.

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

- **Potential excavations required for foundations of the proposed development in close proximity to the tree, T1 that can cause damage**
- **Compaction of the ground surrounding the trees during development process**
- **Damage to the canopies of trees during the development process due to site access**
- **The long-term impact of the proposed extension on the trees**
- **Fire damage from site fires**
- **The use of and storage of materials and chemicals on site**

4.4 All trees have been surveyed taking into account their condition, general health and form. In addition they have also been surveyed taking into account the amenity value that is offered in relation to both the landscape and surrounding buildings. 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 both retained and enhanced.

4.5 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.

Tree survey notes in relation to proposed development

Tree T1

4.6 The Cherry tree, T1, located within the grounds of 3 Inverforth Close is a fair specimen which is located outside of the building footprint as exists and is proposed. The tree is generally structurally sound at the base and despite a section of decay on the eastern stem prior to the main crown break shows relative good form. The tree has been rated as a 'C.1' category tree (BS5837:2012) and is proposed for retention as highlighted within the proposed plan.

4.7 The development is proposed within the same building footprint and therefore the foundations of the building which are within 1.0m of this tree will not be extended. Without further encroachment of the building foundations this tree can be retained but will require the following measures during the construction process:

> 4.7.1 Tree Works as recommended within *Section 6* to reduce encroachment of canopy to proposed building
>
> 4.7.2 Construction of hoarding / basal shuttering as specified within *Appendix E* to protect the main stem from direct damage

Trees T2 - T9 (excluding T4)

4.8 Trees T2-T9 which have been surveyed are sited within adjacent land, Hampstead Heath, The Corporation of London and are within close proximity of the site access rather than the actual development. Due to the single vehicle access via the private driveway, Inverforth Close, the trees have the potential to be damaged from compaction of exposed soft landscape ground and also damage to any low canopy growth overhanging the road. Therefore these trees have been included within the survey as they represent those which have the potential to be affected with the pinch point of the driveway where the potential for 2 x vehicles to pass is possible; from tree T2 - T9, the access of 2 vehicles at any one period relating to the proposed development will need to be avoided.

4.9 Tree T2 is a significant Lime tree which has been recently pollarded within the past 3-4 years and this work has likely been carried out on an ongoing basis resulting in the low - mid pollard. The decay within the main union which extends up the south western stem in addition to the excessive lean to the south accounts for the current form of the tree. Relating to this, the tree has been classified as a 'C.1' category tree (BS5837:2012) due to its limited lifespan.

4.10 Tree T2 has a significant recommended Root Protection Area (RPA) - 13.5m from the main stem - which does extend within the building footprint of the proposed development. However, the building footprint is not being amended or extended and hard standing where all construction site activities will be implemented will remain in situ. The only factor therefore requiring

consideration is the protection of the tree's main stem and eastern root plate where exposed; recommendations are provided within *Section 5*.

4.11 For the remainder of the trees within this grouping all are good specimens, structurally sound and offering excellent amenity value. All mature (with the exception of T6 which is categorised 'B.1') they are rated as 'A.1' category trees (BS5837:2012) and therefore require protection from any development works which have the potential to encroach upon their exposed tree roots. For all the trees within this area the pre-existing timber posts which provide an informal barrier between the heath and the driveway of Inverforth Close do provide a definition to the driveway area which will not be able to be encroached. Generally the soft landscape area for the trees extends from the point of the positioning of the posts; however in order to enforce and define this the following is recommended as is highlighted within *Section 6:*

> 4.11.1 Implementation of a Traffic Management System to ensure 1 x vehicle is required access on private road Inverforth Close at any one time

<u>Trees within Hampstead Heath from Inverforth Close Entrance extending to tree T9</u>

4.12 From the entrance of Inverforth Close from the public highway extending along the driveway to No.3 there are 9 x Lime trees sited to the north east within the Heath. In addition there is a multi-stemmed Elm tree and young Lime tree on the southern verge / boundary sited 8m and 9.5m from the entrance respectively. These trees will remain unaffected by the proposed development due to the hard standing of the driveway, the timber posts and the narrow driveway meaning only 1 x vehicle can access this section of the driveway at any one time. Therefore in relation to these trees no protective measures are recommended.

<u>Trees T4, T10 & T11</u>

4.13 Trees sited within the property to the south of Inverforth Close, T4, T10 & T11 will similarly remain unaffected by the proposed development. Their location within the adjacent property allows for protection from the driveway access area by means of the boundary wall and as with trees T2-T9, the hard landscape driveway which will remain will continue to protect the tree roots of these trees as previously.

4.14 For tree T4, the RPA does extend within the footprint of the building but as no alteration to the existing building foundations will be occurring, the tree roots relating to this tree will not require protection. Should any encroachment be required outside of the existing footprint of the building the Local Authority tree officer would require notification of proposals in writing prior to the commencement of any works.

5. Outline Method Statement

5.1 Sequence of Events

5.1.1 The following sequences are governed by operational constraints and are subject to change. The consulting arboriculturist must be noted of any changes to this schedule prior to implementation where trees / tree protection measures as exiting are likely to be affected.

Pre-development stage

a) Pre Contract / Commencement site meeting between Local Planning Authority, client and developers architect. The meeting should take place before any development activity begins to confirm the timing and implementation of the agreed tree works and tree protection measures including site storage and any pertinent time scheduled for site operators.

b) Tree protection measures installed as specified within Tree Protection Plan

c) Site to be inspected by consulting arboriculturist.

Development Stage

d) This stage is subject to site monitoring visits by the consulting arboriculturist at intervals as agreed at the pre-commencement site meeting. These visits are to ensure that the agreed protection measures are functional and correctly achieving their purpose.

e) Arboricultural supervision is to be carried out at all crucial stages throughout the development process to ensure detailed tasks are carried out as per the approved methodology and all objectives met.

f) The local authority arboriculturist will have free access to the site and forward any recommendations directly to the consulting arboriculturist.

Final Development Stage

g) For dismantling Tree Protection Fencing a minimum of seven days notice will be given to the Local Authority prior to the works.

h) All landscaping works once the protective fencing has been removed will avoid soil re-grading and disturbance within the original Tree Protection Area. No soil levels will be altered after the protection barriers have been removed.

5.2 Tree Protection Specifications

5.2.1 The implementation of the proposed development can be achieved whilst retaining trees **T1 - T11** for the long term by taking into account all the above points and in addition to the following which must be adhered to at all times:

- The Tree Protection Fencing as specified within this report and within the TREE PROTECTION PLAN (Appendix B.4) must be implemented prior to the commencement of any construction works.

- A Traffic Management System for all construction site access to 3 Inverforth Close

- All construction activities must adhere to the tree protection guidelines as explained in the guidance below.

5.3 Excavations & Root Severance Guidance

5.3.1 No excavations are s required within the root protection area of trees T1, T2, T4 where RPA's extend within the building footprint. In the unlikely occurrence of excavations being required, these must be hand-dug where within the RPA of retained trees and in close adherence with the guidance below and with prior agreement from the consulting arboriculturist or Local Authority Tree Officer to the following specifications:

5.3.2 During construction works, the severance of any tree roots encountered larger than 2.5 cm in diameter MUST NOT occur without prior consultation with the Local Authority Tree Officer or appointed Arboricultural Consultant.

5.3.2 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.

5.4 Tree Protection Fencing (T1)

5.4.1 Protection of the trees highlighted for retention should be implemented as explained below. These measures should remain for the entire construction process in order to provide a comprehensive barrier from the trees.

- Basal shuttering should extend surrounding tree T1 as highlighted within *Appendix B.4* (and *Appendix B.3* if required) and as recommended within *Appendix F.*

- Inverforth Close private driveway should remain a Construction Exclusion Zone with the exception of site traffic with this area defined by the gate to the private housing area where No.3 is sited

- No building materials or chemicals are stored within the tree driveway / Construction Exclusion Zone) with a clearly defined storage area provided

- There should be no fires within this site.

5.5 Site Notices

5.5.1 The site notices as included in *Appendix D* summarising the above information should be visible at all times for employees working within the site within close proximity of the trees.

5.6 Traffic Management System

5.6.1 A traffic management system must be implemented whereby the following is adhered to:

- One vehicle at any one time must be permitted within the driveway area between the main access gate and the private gate to No.3 - No.8 Inverforth Close

- The traffic management system must clearly define that the driveway is used for access only in a direct manner without waiting or unloading of materials

5.7 Storage of Materials, Machinery & Chemicals

5.7.1 A designated area for storage of materials, machinery and chemicals is recommended outside of the RPA of any trees within close proximity of the proposed development. By locating the area for storage of materials within the private residential area no trees are affected by this element of the construction process.

5.8 Communication, Monitoring and Compliance

5.8.1 In ensuring that all 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.

5.8.2 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

5.8.3 Once the Tree Protection Fencing has been installed and for the remainder of the development until the final stage as highlighted in *Section 3: Sequence of Events* above, it 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.

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

6. Recommended Tree Management Plan

Any tree work should be carried out to *BS 3998; 2010 'Tree Work – Recommendations*' and to standards set within the Arboricultural Association's 'Standard Form of Contract and Specifications for Tree Work' by a qualified arboriculturist.

T1: Cherry
Crown reduce overhang to property outline 15-20% to reduce the encroachment / overhang to existing and proposed development

T2: Lime
Re-pollard and further inspect south westerly stem to provide further recommendation for long term

T3: Lime
No action required at present

T4: Sycamore
No action required at present

T5: Lime
No action required at present

T6: Lime
No action required at present

T7: Lime
No action required at present

T8: Lime
No action required at present

T9: Lime
No action required at present

T10: Cherry
No action required at present

T11: Cherry
No action required at present

Notes:

- *All Local Authority permissions must be sought prior to the commencement of tree works*
- *Tree works require the permission of the owners of the trees - for tree T2 the recommendation is in relation to health and safety reasons only and is unrelated to the proposed development*

7. Appendices

Appendix A

Tree survey (BS5837:2012)

3 Inverforth Close
Hampstead
London
NW3 7EX

Tree Survey Notes

**Tree T4, T10 & T11 have been surveyed from the driveway, Inverforth Close only and therefore trunk diameters have been estimated as denoted by (e)*

Colour Key: BS5837: 2012 (see *Section 2.6*)

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

3 Inverforth Close, London, NW3
BS 5837: 2012 Tree Schedule – November 2016

Tree No	Species	Ht (m)	DBH. (mm)	Sprd (m)	Age	Visual Cond.	Phys. Cond.	Comments / Structural condition	Management Recommends.	Estimated Remaining (years)	BS 5837 Rating	RPA Distance (m)
T1	Cherry	8	220	N: 3 E: 2 S: 3 W:3	M	F	F	Fair specimen; decay in main stem from 1-1.8m - occluding well but does limit lifespan	Crown reduce overhang to property outline 15-20% to reduce encroachment / overhang	15 - 20 years	C.1	2.6
T2	Lime	14	1130	N: 4 E: 5 S: 5 W:3	M / OM	F	G	Tree is heavily leaning at base to the south - good compensatory growth although extensive epicormic growth at base. On southern side extensive single fluting extends from base; appears sound. Main union at 3.0m showing signs of decay. 3 stems develop. South western stem has been heavily reduced with fungus from main union to 5-6m - likely *Bjerkandera adusta*; top of this stem has full cavity. Further 2 stems heaviy reduced to 11-13m to account for decay; reasonable condition. Last reduced 3-4 years ago	Re-pollard and further inspect south westerly stem to provide further recommendation	10 years +	C.1	13.5m
T3	Lime	20	680	N: 5 E: 5 S: 6 W:4	M	G	G	Generally structurally sound at base with good root flare and sound fluting in main stem. Slight lean to south east main stem in good condition; previously ivy clad. Previously reduced / lifted over road to 6-7m	No action required at present	40 years +	A.1	8.2m
T4	Sycamore	14	500 (e)	N: 7 E: 3 S: 6 W:6	M	G	G	Tree not inspected from base due to location within neighbouring property. Main union appears sound; some low vigour in very upper crown. Some minor deadwood throughout Previously reduced / lifted over road to 6-7m	No action required at present	40 years +	A.1	6.0m
T5	Lime	20	810	N: 4 E: 6 S: 5 W:5	M	G	G	Tree is generally structurally sound at base w/ good rot flare. Main stem in good condition w/ main union at 2.0m - appears sound with 2 main stems dominating to south and north. Previously reduced / lifted over road to 6-7m	No action required at present	40 years +	A.1	9.7

T6	Lime	20	810	N: 4 E: 6 S: 5 W:5	M	G	G	Young to early mature specimen developing into a balanced tree; generally structurally sound	No action required at present	40 years +	B.1	3.1
T7	Lime	19	880	N: 5 E: 5 S: 5 W:5	M	G	G	Tree has excellent form with good shape; generally structurally sound with good root flare to the east. Small cavity at ground level to 300mm - 200mm width. Main stem / crown in good condition. Previously reduced / lifted over road to 6-7m	No action required at present	40 years +	A.1	10.6
T8	Lime	19	740	N: 4 E: 5 S: 7 W:5	M	G	G	Generally structurally sound at base with good root flare. Main union at 3m is sound with full canopy developing from 6-7m - congested. Previously reduced / lifted over road and Heath Lodge to 6-7m	No action required at present	40 years +	A.1	8.9
T9	Lime	20	750	N: 4 E: 4 S: 6 W:5	M	G	G	Generally structurally sound at base with good root flare. Small cavity at base 80mm wide - appears insignificant with good compensatory growth	No action required at present	40 years +	A.1	9.0
T10	Cherry	6	160 (e)	N: 4 E: 3 S: 3 W:2	M	G	G	Ornamental specimen, lightly suppressed to the west; generally structurally sound	No action required at present	15 - 20 years	C.1	1.8
T11	Cherry	6	160 (e)	N: 3 E: 2 S: 3 W:3	M	G	G	Ornamental specimen, lightly suppressed with canopy mainly to the south east	No action required at present	15 - 20 years	C.1	1.8

Appendix B

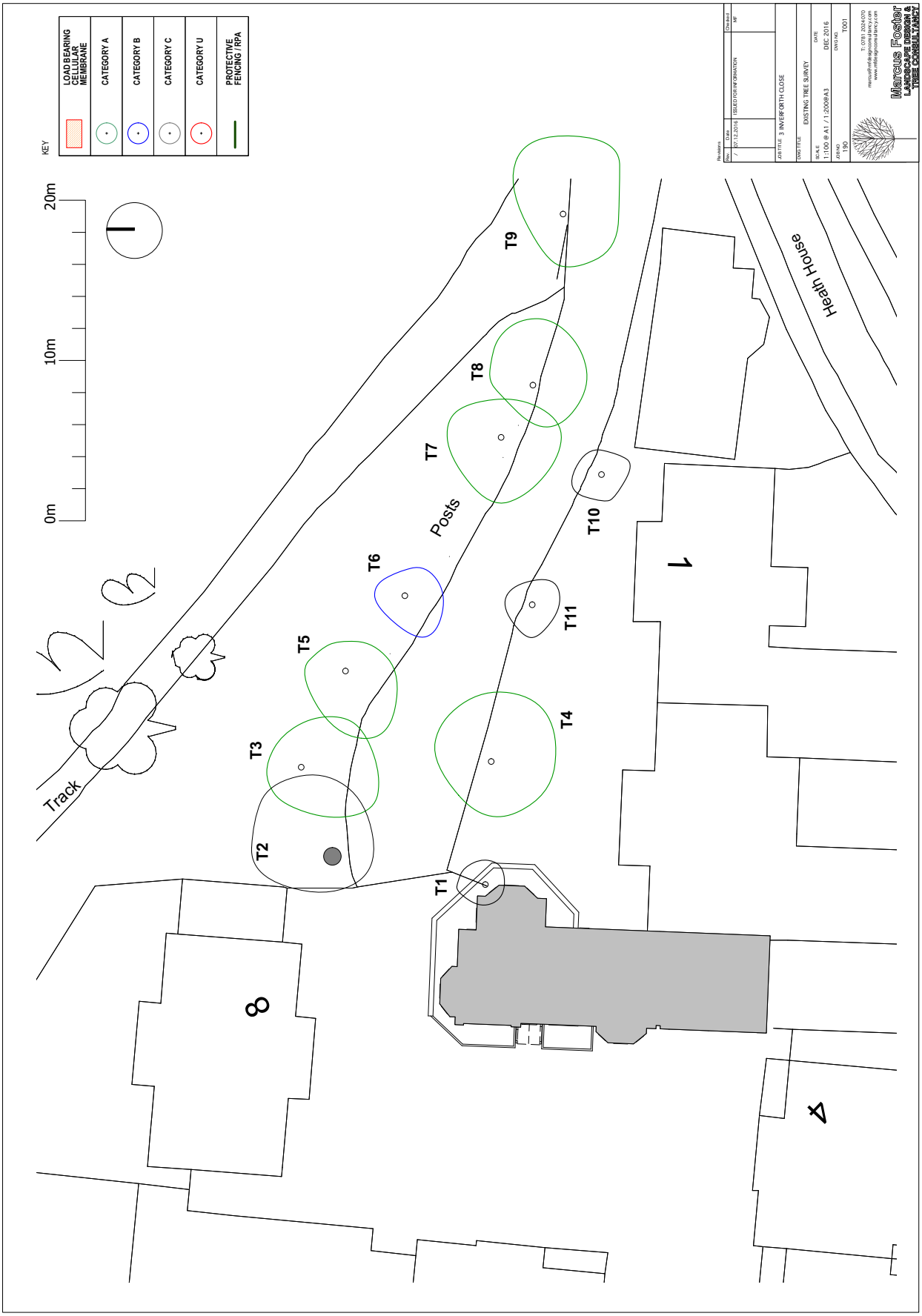
Existing & Proposed Site Plan (BS5837:2012) *incorporating* Tree Protection Plan

3 Inverforth Close Hampstead London NW3 7EX

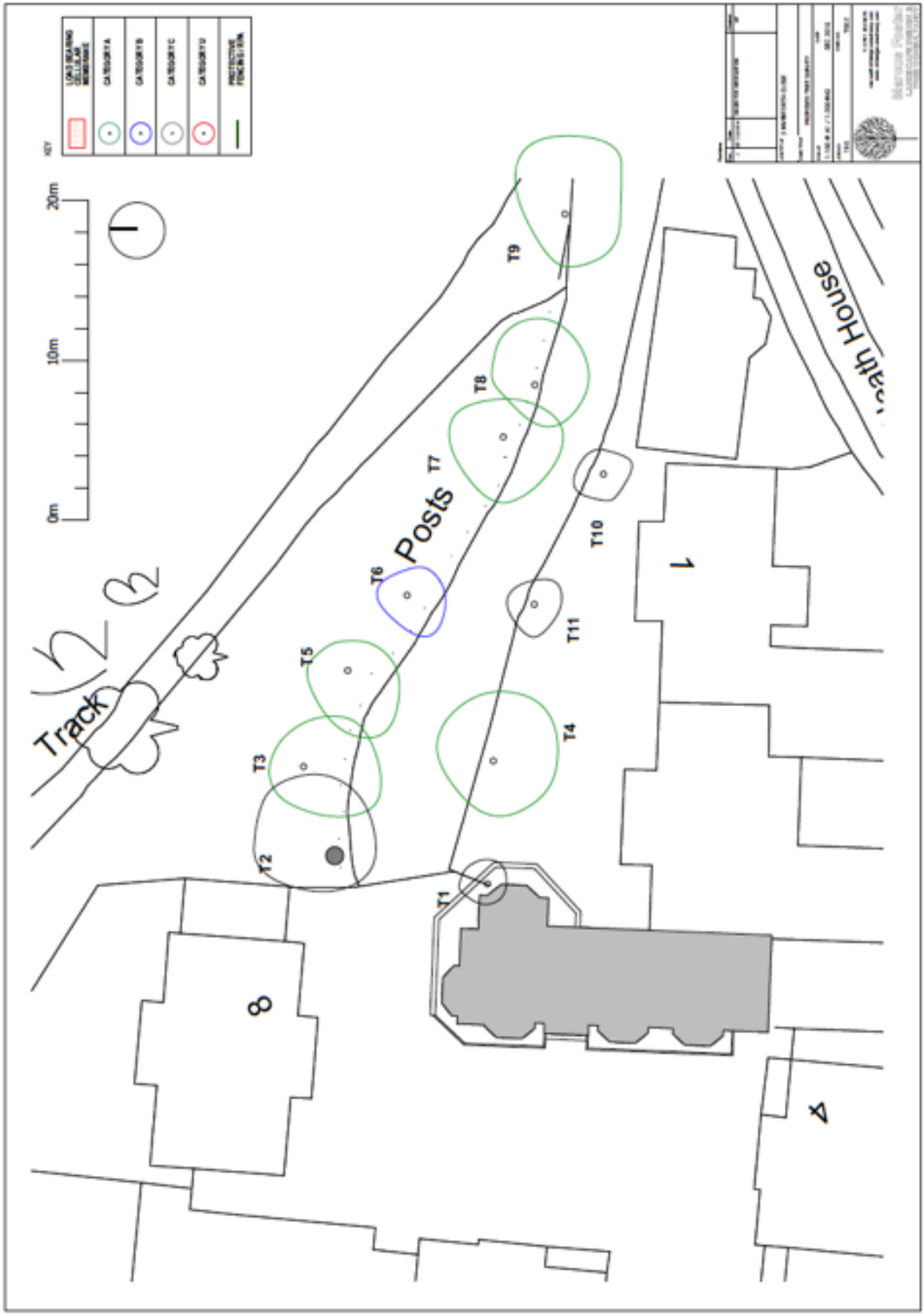
Plan supplied by
A.D.A Architecture - PL/01

*Do not scale from Appendix B
separate PDF attached

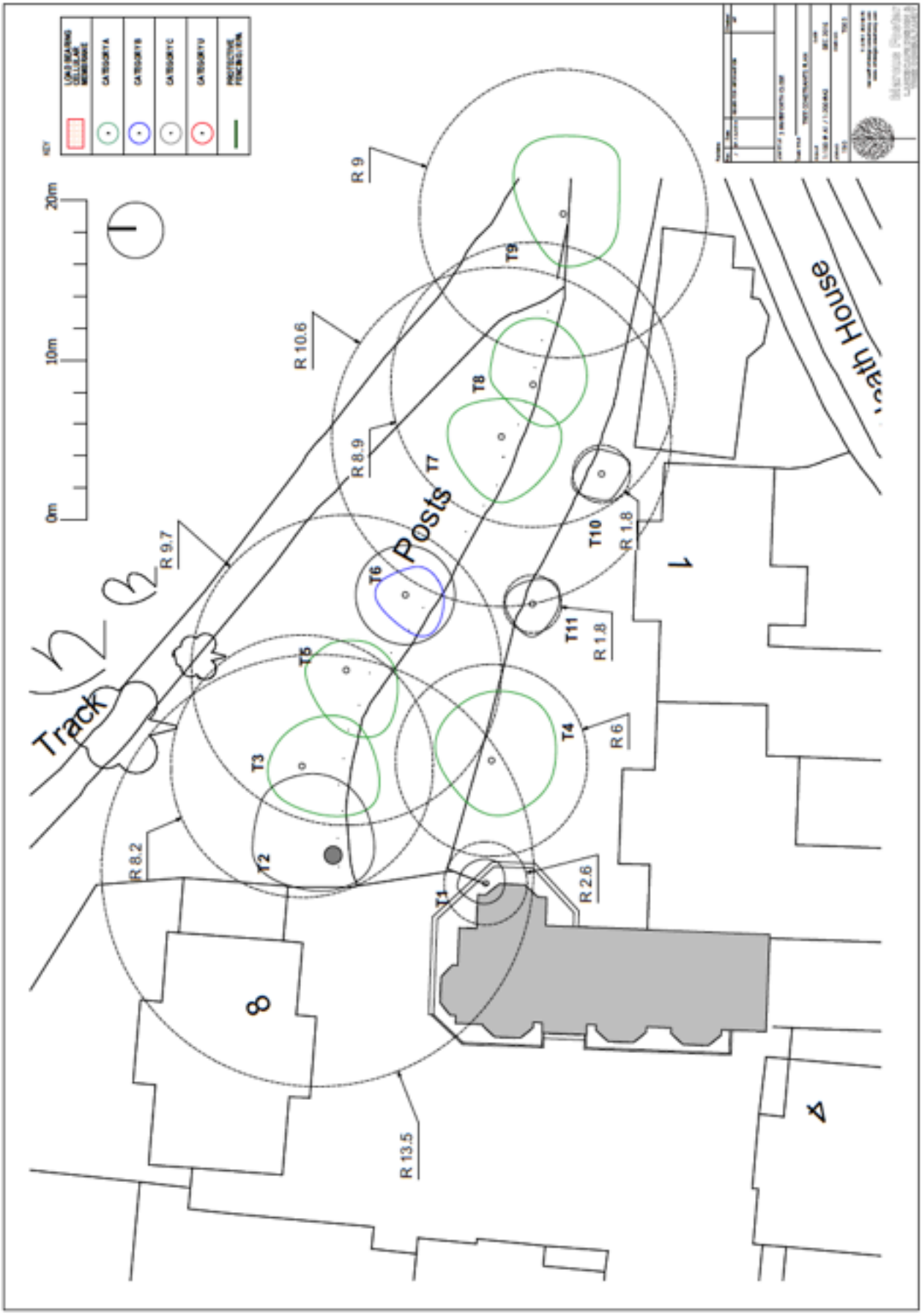
Appendix B.1: Existing Site Plan - 3 Inverforth Close, London, NW3



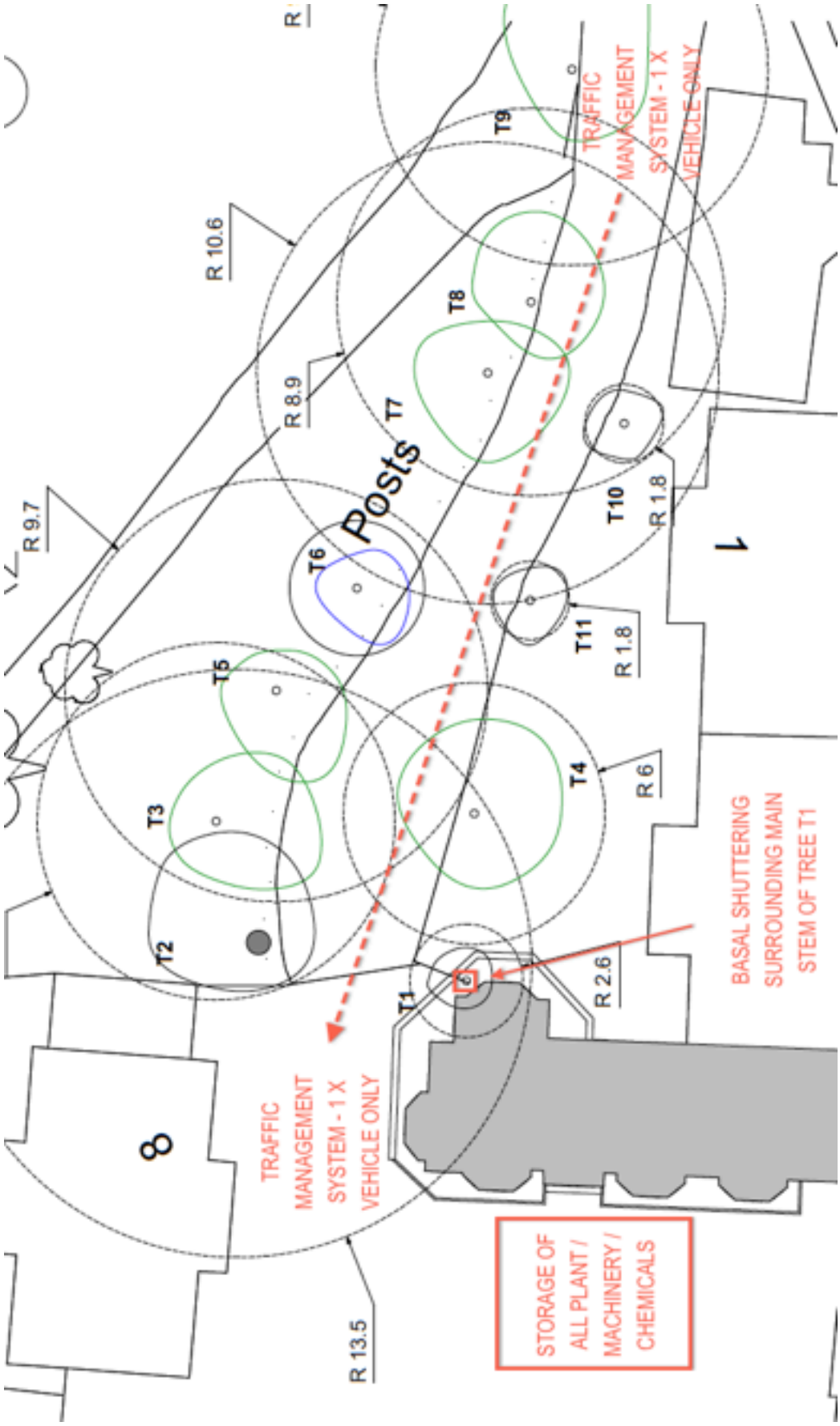
Appendix B.2:Proposed Site Plan - 3 Inverforth Close, London, NW3



Appendix B.3:Proposed Site Plan w/ RPA - 3 Inverforth Close, London, NW3



Appendix B.4: Outline Tree Protection Plan: 3 Inverforth Close, London, NW3



Appendix C

Site Photographs for:

3 Inverforth Close
Hampstead
London
NW3 7EX

Taken November 2016

C.1 Photograph of tree T2, land adjacent to Inverforth Close, Hampstead Heath as viewed in a westerly direction

C.2 Photograph of tree T2, land adjacent to Inverforth Close, Hampstead Heath as viewed in a northerly direction

C.3 Photograph of trees T3-T8, land adjacent to Inverforth Close, Hampstead Heath and No.1 Inverforth Close as viewed in a southerly direction

C.4 Photograph of trees T5-T9, land adjacent to Inverforth Close, Hampstead Heath as viewed in a south easterly direction

C.5 Photograph of trees within land adjacent to Inverforth Close, Hampstead Heath between entrance and tree T9 (not surveyed) as viewed in a south easterly direction

C.6 Photograph of trees within land adjacent to Inverforth Close, Hampstead Heath between entrance and tree T9 (not surveyed) as viewed in a northerly direction

Appendix D.1:
Tree Protection Notice

Site Specific
Tree Protection Notice
(BS5837: 2012)

3 Inverforth Close
Hampstead
London
NW3 7EX

Notice to be clearly shown on site
AT ALL TIMES

TREE PROTECTION/ CONSTRUCTION SITE NOTICE

Guidance for ALL EMPLOYEES working on site in relation to the tree protection required at all times

Site: 3 Inverforth Close, London, NW3

- There should be no storage of fuels, chemicals or cement based products within this designated Tree Protection Area. All storage of hazardous materials should be within lower level of garden.

- There should be no storage of materials or mixing of chemicals / concrete within this area at any time. There should also be no fires within the site

- .Notice boards, telephone cables etc should not be attached to any part of any of the trees.

- The severance of any tree roots encountered larger than 2.5 cm in diameter MUST NOT occur without prior consultation with the Local Authority Tree Officer or appointed Arboricultural Consultant.

- Where excavations do occur within the specified Root Protection Area with hand dug excavations being undertaken, ANY tree roots encountered over 2.5cm in diameter should be retained where possible. Hand digging is to continue around any such tree roots.

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

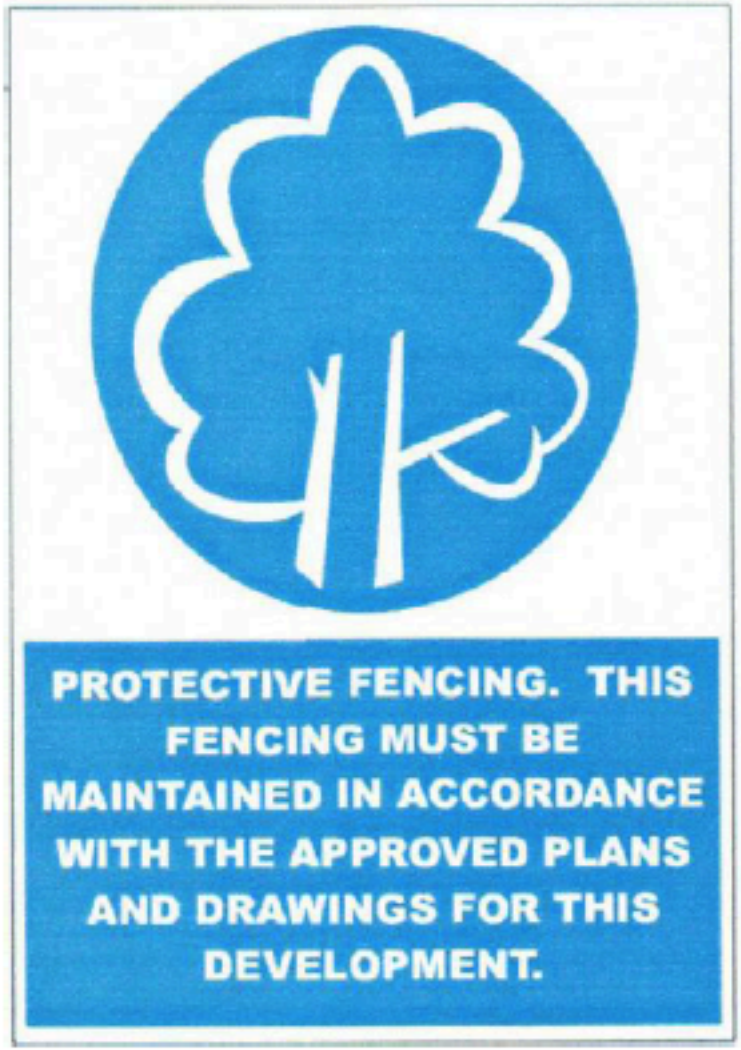
Marcus Foster (Arboricultural Consultant): 0781 2024 070
Local Authority Tree Officer (LB Camden): 020 7974 4444

Appendix D.2:
Tree Protection Notice

Generic Tree Protection Notice (BS5837: 2012):

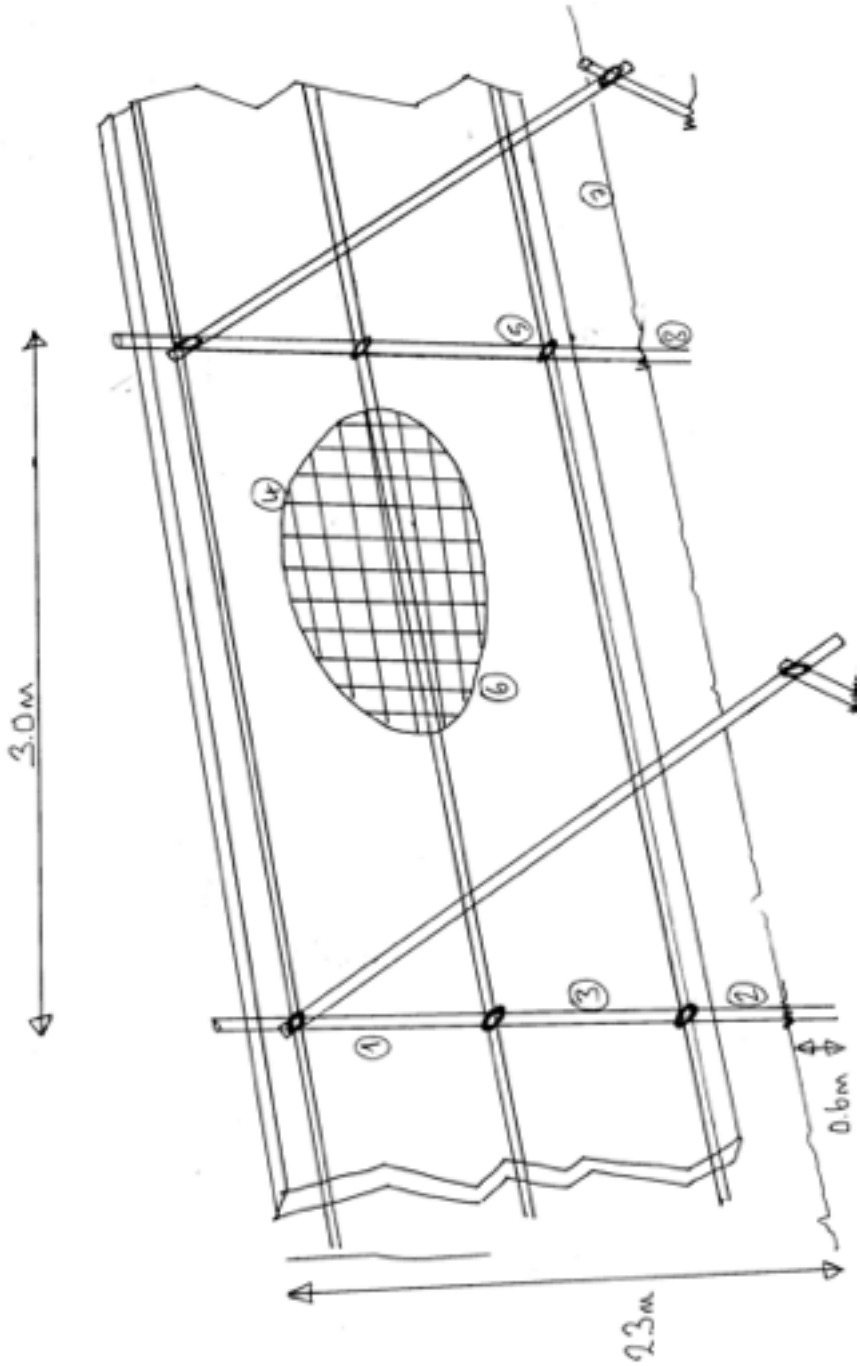
3 Inverforth Close
Hampstead
London
NW3 7EX

Notice to be clearly shown on site AT ALL TIMES



Marcus Foster BA (Hons) NDArb. Tech.Cert (ArborA) EGS.Dip

Appendix E: Example of Tree Protection Fencing as outlined in BS5837 (2012) Specifications



Tree Protection Specification Key:

1. Scaffold tubes
2. Uprights driven into ground
3. Panels secured to uprights
4. Weldmesh secured to fence
5. Standard clamps
6. Wire secured to fence
7. Ground level
8. Tubes driven 0.6m into ground

Appendix F: Example of Basal Shuttering

Basal shuttering offers immediate protection for the lower main stem and initial root plate of a tree where exposed with a porous surface. This method of tree protection does not offer protection to the root plate of a tree where surfaces are exposed / development works are being undertaken within the Root Protection Area of a tree. however, it does offer immediate protection to the main stem and provides vital clearance between the tree and construction site activities such as storage of materials, ad hoc toilet usage and compaction of exposed soft landscaped ground (in addition to many other additional construction site activities.

Photograph taken by Marcus Foster within City of Westminster, 2015

Appendix G: 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)