Revised Tree Survey
Arboricultural Impact Assessment
Arboricultural Method Statement

Relating to:

1A Regents Park Road,
London NW1 7TL

Produced for:
Powell Tuck Associates Ltd.

Prepared by:
Challice Consulting Ltd.
Mr. David Challice
Dip. Arb. (RFS), F.Arbor.A, MICFor

Date:
30th November 2016

Our Ref:
CC/1677 AR3158

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APPENDICES

Appendix 1	Tree Survey Schedule with Recommended Tree Works
Appendix 2	Tree Protection Plan in Colour at A1 and Scale 1:100 with Tree Protective Fencing and Ground Protection Specifications
Appendix 3	Example of Site Inspection Record
Appendix 4	Induction Form for Personnel

INTRODUCTION

1.0 Frequently Used Key Terms and Abbreviations

Tree Preservation Order	TPO
Arboricultural Method Statement	AMS
British Standard 5837:2012 – Recommendations for Trees in Relation to Design, Demolition and Construction	BS 5837
British Standard 3998:2010 - Recommendations for Tree Work	BS 3998
Root Protection Area/Root Protection Areas	RPA/RPAs
Local Planning Authority	LPA

2.0 The Proposal

2.1 It is proposed to:

- refurbish the existing lower ground floor flat including new window openings
- Construct a new extension to the eastern side of the house
- Construct new hard and soft landscaping to the front and rear of the house
- Carry out works to the rear boundary wall including a new gate

3.0 Instructions and Purpose

3.1 This report has been commissioned by Powell Tuck Associates Ltd. to;

- Survey the subject tree in accordance with British Standard (BS 5837) 5837:2012 - Trees in Relation to Design, Demolition and Construction- Recommendations.

- Make suggestions to decrease the arboricultural impact of the proposed scheme on the subject tree.

- Detail the arboricultural impact of the proposed project.

- Prepare a tree work schedule to British Standard (BS 3998) 3998:2010 - Recommendations for Tree Work.

- Develop a tree protection strategy for the duration of the development including any demolition works.

3.2 Provision of the above information is designed to address the requirements of the LPA in terms of the arboricultural information necessary to register and determine the planning application.

4.0 Scope

4.1 In surveying the trees to the requirements of BS 5837, trees on and immediately adjacent to the site with a stem diameter over 75mm have been included. Large shrubs and hedges have been included where these

are considered to be of significant amenity value. These are particularly important where they provide boundary screening. For clarity and ease of data interpretation, large shrubs have been classified as trees.

4.2 A full hazard assessment of the subject tree (including the assessment of decay or defects and their impact), has not been undertaken as this is considered beyond the scope of this report. Any obvious hazards and defects have been identified in the Tree Survey Schedule and appropriate works recommended for immediate action.

5.0 Documents Supplied/Used

Document	Obtained From	Format/Ref.
Existing and proposed layout plans	Powell Tuck Associates Ltd.	Dwg.
Topographical Survey	Powell Tuck Associates Ltd.	Dwg.

6.0 Site Details

6.1 The site is comprised of a semi-detached dwelling located on the southern side of Regents Park Road.

6.2 The site is within the administrative jurisdiction of the London Borough of Camden.

6.3 I have not been instructed to ascertain the protection status of any of the trees on or near the site. However, the client has informed me that the subject tree is located within a Conservation Area.

TREE SURVEY

7.0 Survey Method

7.1 The site and subject tree was inspected on 27th May 2016.

7.2 The subject tree was inspected from ground level and no climbing inspection was undertaken.

7.3 The stem diameter was measured using a diameter tape at 1.5m from ground level. The location of the surveyed tree has originated from the drawings supplied by the client unless otherwise stated in the Tree Survey Schedule.

8.0 Tree Details

8.1 The only tree on the site is a Pollarded Sycamore that is approximately 18m tall which I have graded A due to its good condition and high amenity value.

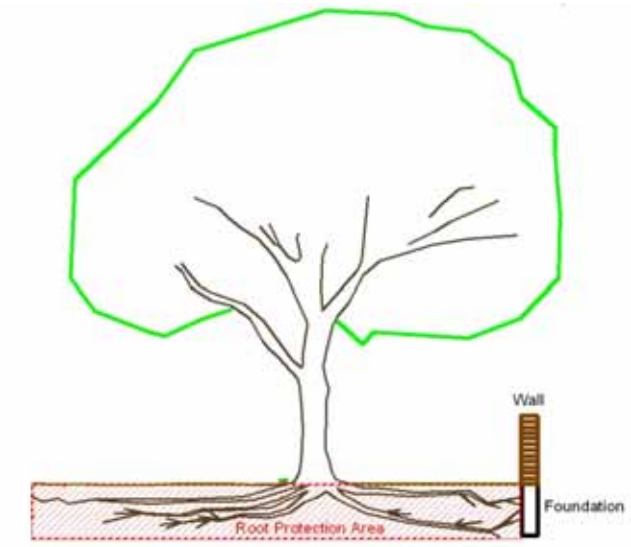
8.2 The tree details and proposed works are presented in the Tree Survey Schedule with Recommended Tree Works at **Appendix 1** and the tree position is shown on the Tree Protection Plan at **Appendix 2**.

8.3 The quality and value of the tree stock has been broken down by BS 5837 quality grade. The grading system can be summarised as follows:

A Grade – trees of high quality and value with a life expectancy of more than 40 years
B Grade – trees of moderate quality and value, with a life expectancy of more than 20 years
C Grade – trees of low quality and value, with a life expectancy of more than 10 years
U Grade – trees for removal, with a life expectancy of less than 10 years

8.4 The RPA of the subject Sycamore tree is included in the Tree Survey Schedule with reference to Table 1 of BS 5837. The RPA is the area, measured in m^2, which is calculated in accordance with the BS 5837 using the stem diameter of the trees. This should provide the retained tree with sufficient rooting environment to survive the proposed development. Section 4.6.3 of BS 5837 provides for the shape of the RPA to be modified from the starting point of a circle to account for site features where rooting may be restricted, as long as the total area remains the same.

Diagrammatic Representation of a Restricted Root Protection Area



Modified RPA

Tree No.	Impediments to Normal Rooting
Sycamore T1	Existing hard surfacing and adjacent buildings

ARBORICULTURAL IMPACT ASSESSMENT

9.0 Introduction to Arboricultural Impact Assessment

9.1 This section comprises an assessment of the impact the proposed works detailed in Section 2 above has on tree T1. It considers the arboricultural impact and how this may be mitigated.

10.0 Tree Removal and Retention

10.1 The proposed scheme provides for the retention and protection of Sycamore T1.

11.0 Tree Pruning Works

11.1 Minor tree pruning is recommended for good arboricultural practice and to ensure reasonable clearance from the proposed construction. The pruning described in the Tree Survey Schedule with Recommended Tree Works at

Appendix 1 will not adversely affect tree T1 or its contribution to local amenity.

12.0 Incursions into Root Protection Areas

12.1 The table below summarises the significant incursions into the RPA of Sycamore T1. The 'Action' column details how the incursion has been mitigated and why it is considered acceptable. Incursions may be fully invasive (where specialist methods are not used and some root loss is considered acceptable) or low invasive (where specialist methods are used to minimise damage to or loss of roots). Full details of how the works will be carried out without causing damage to T1 are given in the AMS.

Summary of Incursions into the RPA

Tree No.	Type of Incursion	Incursion %	Action
T1	Low invasive to install a raft or slab foundation cast on top of the existing soil level	12.9%	The raft or slab foundation will be installed under direct arboricultural supervision to ensure soil levels are not reduced and root disturbance is minimised

12.2 The existing shed is to be demolished adjacent to the RPA of T1. This work will be undertaken in an arboriculturally sensitive manner as detailed in the AMS.

12.3 No new underground services are to be installed within the RPA of the subject tree.

13.0 Proximity Issues and Shading

13.1 The approximate shade segment for Sycamore T1 has been plotted using the ArborCAD software system, which identifies the area of the site which may be affected by shade during the course of the day. The shade segment does not represent the area which will be in shade all day long; however, it represents an area which **may** be affected **at some point**

during the course of a day by shade depending on the time of day and season.

13.2 The juxtaposition between T1 and the proposed development is in accordance with Section 5.3 of the BS 5837 and should not lead to future pressure to heavily prune or remove this tree for the following reasons:

1. Tree pruning has been recommended to provide adequate separation between the proposed development and the subject tree.
2. Any future tree pruning works are unlikely to be over and above those generally accepted as good arboricultural practice in this urban environment.
3. Low maintenance gutters can be specified to negate the need for removing leaves from the rainwater collection system.

14.0 Summary of Arboricultural Impact

14.1 In summary, the arboricultural impact of the proposed scheme is minor as no tree is to be removed and minimal pruning is required to enable construction works to be completed.

14.2 Sycamore T1 can be afforded an appropriate degree of protection in accordance with the BS 5837 as detailed in the attached AMS.

ARBORICULTURAL METHOD STATEMENT

15.0 Introduction to Arboricultural Method Statement

15.1 To safeguard T1 (both above and below ground parts) during the development works and preserve the soil structure of areas which could be allocated for new planting, it will be necessary to implement tree protection measures as outlined below.

15.2 The basic principle is that the area inside the tree protective fencing and where ground protection has been used is to be protected for the duration of the works.

15.3 A copy of this AMS shall be maintained on site at all times and made available to all site personnel.

15.4 All site personnel shall be made aware of the key impact of this AMS and be given an arboricultural induction by the Site Manager. An Induction Form is attached at **Appendix 4**. A copy of the Induction Form will be signed by all site personnel to confirm that they have understood the issues involved.

15.5 As of 2005, Local Planning Authorities have powers to serve **Temporary Stop Notices** if agreed tree protection measures are not carried out. Adhering to this AMS will ensure that such costly and time consuming action is avoided.

16.0 Pre-Commencement Meeting

16.1 A pre-commencement site meeting, involving representatives from the Development Company, the Arboricultural Consultant and the LPA Tree Officer will be held to ensure that all aspects of the tree protection process are understood and agreed. A record of the meeting will be communicated to all parties by the Arboricultural Consultant.

17.0 General Site Precautions

17.1 The following points will be observed at all times:

- No fires will be lit on site during the construction or demolition phases.
- No access will be permitted inside the tree protective fencing.
- No materials, equipment or debris will be stored within the tree protective fencing.
- Notice boards, telephone cables or other services will not be attached to any part of T1.
- Materials which will contaminate the soil (e.g. diesel oil and vehicle washings) will not be permitted to migrate into the RPA of the subject tree.

- A dedicated mixing and cleaning area will be set up to prevent concrete, cement and cleaning residue leaching into the RPA of T1 (see Tree Protection Plan for specification).

18.0 Tree Works

18.1 All works will be carried out in accordance with BS 3998:2010 'Recommendations for Tree Work' (as amended) and to current arboricultural best practice. Tree works will be carried out by a suitably qualified and experienced Arboricultural Contractor holding the necessary insurance cover. This contractor should carry out the relevant site specific risk assessments and record such information prior to commencement of tasks and work in accordance with current health and safety standards, practices and legislation. A list of such contractors is available from the Arboricultural Association at www.trees.org.uk.

18.2 The subject tree is protected by virtue of being within a Conservation Area. Submission of this AMS in connection with a planning application should be construed as a formal application to carry out those works specified in the Tree Survey Schedule with Recommended Tree Works at **Appendix 1**. It is recommended that this matter be clarified in writing with the LPA prior to any works commencing.

18.3 If additional tree pruning is required to facilitate the proposed works or access for machinery/plant, the Arboricultural Consultant will be contacted to advise on appropriate works and liaise with the LPA as necessary.

19.0 Tree Protective Fencing

19.1 Tree protective fencing is used to ensure that the RPA of the subject Sycamore tree is safeguarded. These measures may also be employed to protect areas of ground for new landscaping.

19.2 The positioning and specification of the fencing is shown in **Appendix 2**. In this case, the default specification of BS 5837 consisting of **fixed Heras** fencing would be effective.

19.3 The protective fencing will remain in position for the duration of the development, including the removal of any existing structures. Clear signs will be attached to the fencing once erected – suggested wording will be **'Construction Exclusion Zone No Access'**.

20.0 Ground Protection

20.1 A provision has been made to install ground protection between the edge of the proposed development and the tree protective fencing. This provides adequate working space to permit the safe and practical completion of construction works whilst protecting the rooting environment of the subject tree (position and specification shown in **Appendix 2**). The ground protection will remain in place for the duration of the development, including the removal of any existing structures.

21.0 Site Access/Hard Surfaces

21.1 The existing footpath into the front of the site is suitable for site access during demolition and construction and little or no damage is anticipated to the root system of the subject tree.

22.0 Demolition

22.1 The existing buildings will be demolished using the 'top down, pull back' method as recommended in BS 5837. This is achieved by demolishing the structure into its own space with the placement of heavy machinery (if required) onto the existing foundation or ground protection.

Example of demolition within the RPAs of retained trees (note that the machinery is located within the building footprint and the debris is contained by the tree protective fencing and the ground protection)

23.0 Underground Services

23.1 The proposed scheme can make use of existing services and all new services and soakaways will be located in the adequate space outside the RPA of T1.

23.2 The locations, specifications and installation methods of all new services will be available for review at the pre-commencement site meeting before any works start on site.

24.0 Foundations

24.1 Due to the location of the proposed extension within the RPA of the subject tree, a raft or slab type foundation will be designed by a qualified Structural Engineer, which will be placed on top of the existing soil level. A slab foundation is a large concrete floor covering the entire building area through which all the loads from the building are transmitted to the soil. It

is both building floor and foundation and is well suited to garages, small stores, and homes without basements. The concrete floor and the foundation are cast in one piece. Steel bars are placed at the bottom under walls or columns to resist tensile stress in these zones.

24.2 The soil surface should not be skimmed to accommodate the raft or slab; however, loose or organic matter and/or turf could be removed to form the new ground level using hand tools only. A heavy duty plastic membrane will be placed on top of the soil to prevent contamination of the soil from the cement. A copy of the raft or slab design including elevations will be available for the pre-commencement site meeting for review by the Local Authority Tree Officer.

25.0 Construction/Hard Landscaping

25.1 There is no requirement for additional construction or hard landscaping that will affect tree T1.

25.2 Construction is taken to include erection of scaffolding and the installation of associated hard landscaping features such as retaining walls, patios, and cycle stores.

25.3 In this instance, T1 will not impede the erection of scaffolding and no ancillary structures are proposed within the RPA of this tree.

25.4 Subject to all of the above tree protection measures being implemented, construction works may proceed without risk of damage to Sycamore T1.

26.0 Soft Landscaping/Boundary Fencing

26.1 Soft landscaping will be undertaken when heavy machinery has been removed from site and tree protective fencing taken down. The following points will be observed:

- Care will be taken not to compact the soil within the RPA of T1 or where new tree planting is to be carried out.
- No changes in ground levels will occur within the RPA of T1.

- Unwanted vegetation will be removed manually or using contact herbicides that will not damage existing tree roots.
- No irrigation or drainage pipes will be installed within the RPA of T1.
- If soil has been compacted in areas where planting is proposed, measures to improve soil structure (e.g. decompaction) may be necessary to facilitate successful plant establishment.

27.0 Sequencing and Supervision

27.1 Effective tree protection relies on following a logical sequence of events and arboricultural inspection/supervision.

27.2 Works which have the potential to affect trees will be supervised by a suitably qualified and experienced Arboricultural Consultant. Regular inspection visits will also be undertaken to ensure that tree protection measures are being adhered to. The final details of supervision and the frequency of inspection visits will be agreed with the Tree Officer at the pre-commencement meeting. The Arboricultural Consultant will make a record of visits, which will be attached to the site copy of the AMS for inspection and communicated in writing to the LPA. An example of the Site Inspection Record is found in **Appendix 3**.

Sequencing and Supervision

Stage	Action	Personnel Responsible
1.	Issue arboricultural report to site manager	Client/Developer
2.	Give Arboricultural Consultant (**AC**) at least a week's notice of pre-commencement meeting	Client/Developer
3.	Pre-commencement meeting	Site Manager, Tree Officer and AC
4.	Arboricultural induction	Site Manager
5.	Carry out tree works	AC to monitor
6.	Erect tree protective fencing and install ground protection	AC to inspect on a monthly basis to ensure tree protection is in place and report to the LPA (client instruction required)
7.	Carry out demolition	Site Manager
8.	Construct raft or slab foundations for side extension	AC to supervise
9.	Install underground services	AC to supervise
10.	Erect scaffolding and carry out construction (including hard landscaping)	Site Manager
11.	Remove machinery/plant	Site Manager
12.	Remove tree protective fencing/ground protection	Site Manager
13.	Carry out landscaping	Site Manager to brief landscaping company on site and supervise

28.0 Amendments

28.1 Issues sometimes arise on development sites which require amendments to the previously agreed tree protection details. Any amendments to this AMS will be discussed with the Arboricultural Consultant and approved in writing by the LPA prior to being implemented. Copies of paperwork relating to any amendments shall be attached to the site copy of the AMS to provide a definitive record of what has been agreed.

29.0 List of Contacts

Contact	Name	Company/LPA	Contact Number(s)	Report Issued to?
Client	Ms. Esther Bou	Powell Tuck Associates Ltd.	020 8749 7700	Yes
Arboricultural Supervisor	Mr. David Challice	Challice Consulting Ltd.	01306 743374 07831 855764	N/a

Appendix 1

Challice Consulting Ltd.
Tel: 01306 743374

Tree Survey Schedule with Recommended Tree Works

Site: 1A Regents Park Road, London NW1 7TL

Surveyor: Mr. David Challice

Date Surveyed: 27th May 2016

Our Ref: CC/1677 AR3158

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Age Class	Stem Diameter	Protection Multiplier	Protection Radius	Growth Vitality	Structural Condition	Landscape Contribution	B.S. Cat	Sub Cat	Useful Life	Observations
T1	Sycamore **1** Number	18	4.5 4.5 4.5 4.5	GC 4 FB 4 N	Mature	600 1	12	7.2	Normal	Good	High	A	1,2	40+	Stem deformity is present but not thought to be significant Pollarded form

Recommended Works/ Reason for Works:

Crown lift to give 2m clearance from proposed building

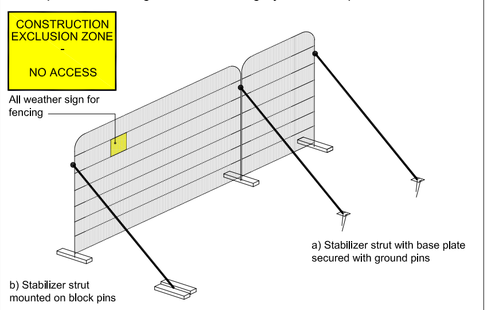
Recommended to permit development

Notes:

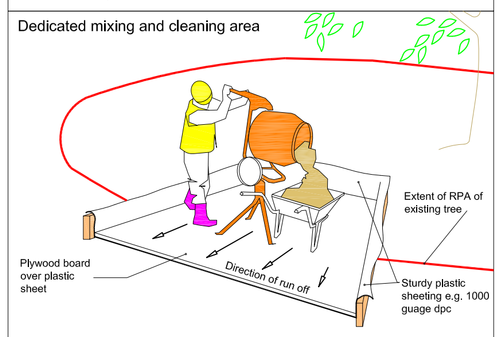
1. Height describes the approximate height of the tree measured in meters from ground level.
2. The Crown Spread refers to the crown radius in meters from the stem centre and is shown above on each of the four compass points (i.e. N, S, E, W).
3. Ground Clearance (**GC**) is the height in meters of crown clearance above adjacent ground level, the height of the first significant branch (**FB**) and the direction in which it is growing.
4. Stem Diameter is the diameter of the stem measured in millimeters at 1.5m from ground level. The stem diameter may be estimated (**est**) where access is restricted or an average (**ave**) taken for groups or multi-stemmed trees with more than five stems. The number of stems is also indicated.
5. Protection Multiplier is the number used to calculate the tree's protection radius and area and is shown as 12.
6. Protection Radius is a radial distance measured from the trunk centre.
7. Growth Vitality - Normal growth, Moderate (below normal), Poor (sparse/weak) or Dead (dead or dying tree).
8. Structural Condition - Good (no or only minor defects), Fair (remedial defects), Poor (major defects present).
9. Landscape Contribution - High (prominent landscape feature), Medium (visible in landscape), Low (secluded/among other trees).
10. B.S. Cat refers to British Standard 5837:2012 Table 1 and refers to tree/group quality and value; '**A**' - High, '**B**' - Moderate, '**C**' - Low, '**U**' - Remove.
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is Landscape and 3 is Cultural including Conservational, Historic and Commemorative.
12. Useful Life is the tree's estimated remaining contribution in years.

Appendix 2

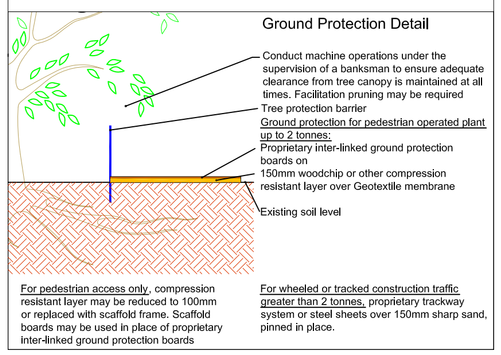
Examples of above-ground stabilizing systems for protective barriers



Dedicated mixing and cleaning area

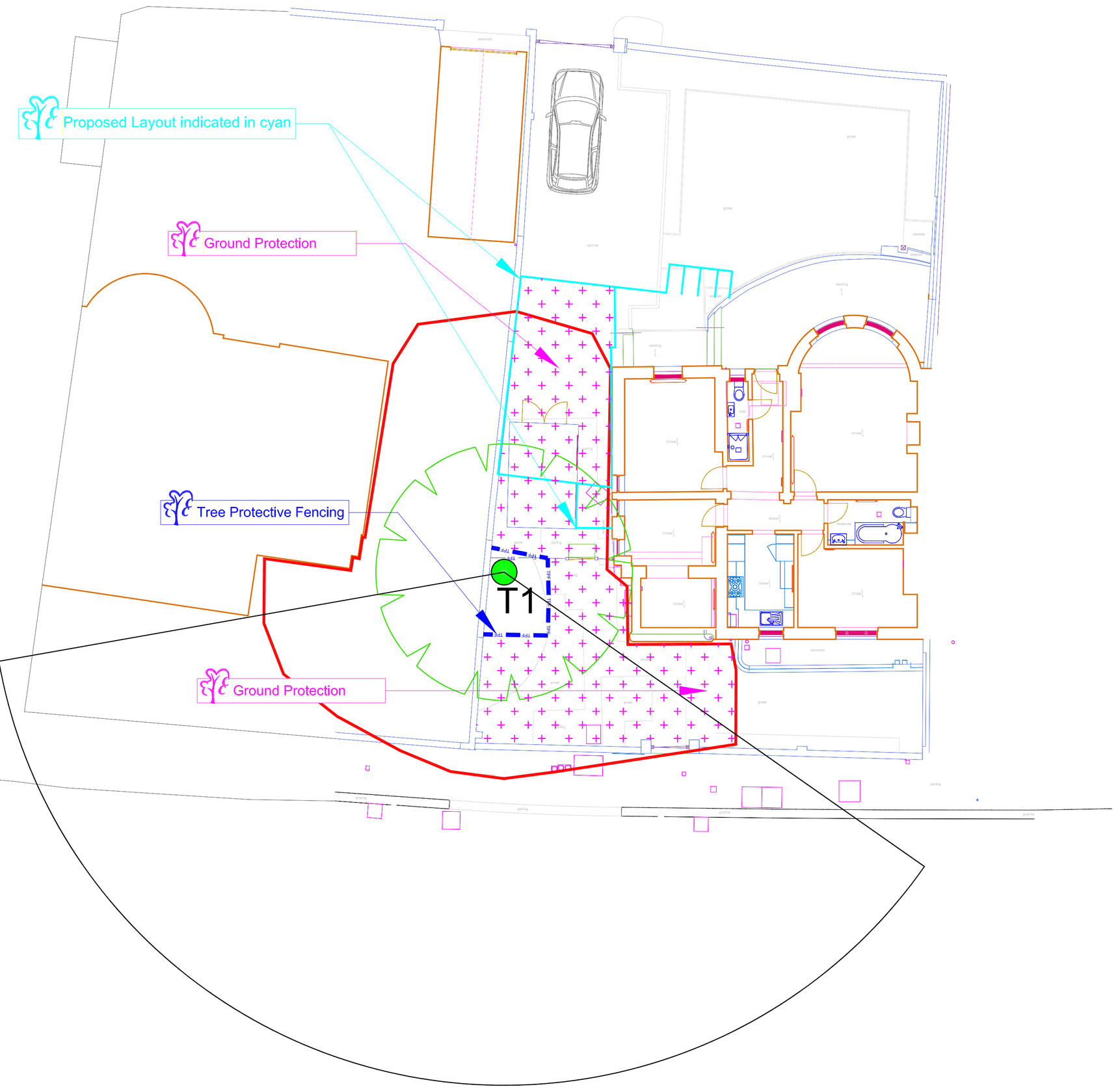


Ground Protection Detail



For pedestrian access only, compression resistant layer may be reduced to 100mm or replaced with scaffold frame. Scaffold boards may be used in place of proprietary inter-linked ground protection boards

For wheeled or tracked construction traffic greater than 2 tonnes, proprietary trackway system or steel sheets over 150mm sharp sand, pinned in place.



THIS PLAN TO BE USED FOR SETTING OUT OF TREE PROTECTION MEASURES ONLY; DO NOT SCALE FROM THIS PLAN UNLESS IT IS PRINTED AT A1. DO NOT USE UNLESS PRINTED IN COLOUR

0 5 10 15m

Indicative

KEY:

- Shade pattern for Sycamore T1
- BS rooting area is shown uniform but may be modified to account for site features
- BS rooting area has been modified to account for site features
- A Grade
- B Grade
- C Grade
- U Grade (remove)
- Position of fixed Heras style fencing
- Position of ground protection
- Notes — Challice Consulting Ltd. annotation

Notes:
Tree protection barrier and ground protection to be erected and installed before machinery or materials are brought onto site, before any demolition or development of land and before soil stripping.

Tree protection measures should be implemented following any necessary pre-development tree work.

Where due to site constraints, construction activity cannot be fully or permanently excluded from all or part of a trees Root Protection Area, appropriate ground protection should be installed.

Barriers and ground protection must not be removed or altered except with prior recommendation by project arboriculturist and where necessary, approval from the Local Planning Authority.

Setting out to be confirmed by project arboriculturist prior to commencement of other operations.

The ground protection detail is to be used where the tree protection barrier needs to be set back so that it will expose unmade ground to construction activity. New, temporary ground protection should be installed as part of the physical tree protection measures prior to starting work on site.

Suitable existing hard surfacing not proposed for re-use as part of the finished design shall be retained as ground protection within root protection areas, where and as long as, it is possible.

Plan to be printed in colour and to scale

DRAWING TITLE
Tree Protection Plan

PROJECT
1A Regents Park Road, London NW1 7TL

SCALE	DATE	DRAWN BY
1:100 @ A1	30.11.2016	D.C.

DRAWING NUMBER	REV
TPP-CC/1677 AR3158	1

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Appendix 3

Challice Consulting Ltd.
T: 01306 743374

Arboricultural Site Supervision

Site: Sample
Inspected By: D. Challice
Client: The Builder
Site Agent: No staff present
Date of Inspection:
Time of Inspection:

Tree Protective Fencing

Tree protection in correct location

Comments/Action
No action at this time

Tree protection T23

Agreed Construction Exclusion Zone

No debris within construction exclusion zone

Comments/Action
No action at this time

Amendments to Documentation Required

No amendments required

Comments/Action

Tree protection T14

Remedial Works

Install protection as per Arboricultural Method Statement

General Comments

No ground protection in place for T11,12,14,17 & 22
Sweet Gum T1 not removed

Appendix 4

Induction Form for all Site Personnel:

Site Name:……..

- I have had explained to me by the Site Manager the key implications of the Arboricultural Method Statement relating to the development at the above site.

- I am aware that the tree protective fencing must remain in its original position and must not be moved without the approval of the appointed Arboricultural Consultant.

- I understand that certain operations must be supervised by the appointed Arboricultural Consultant and that these operations must not start until the consultant is present and has given approval.

- I confirm that I will bring any concerns about potential damage to trees to the attention of the Site Manager.

- I am aware that I must not cause damage to any of the retained trees on or adjacent to the site. Damage may be caused by direct means (i.e. physical damage caused to roots or the trunk/branches of the tree) or by indirect means (e.g. by fire or toxic materials entering the rooting environment of the tree).

Print Name:…….

Sign Name:…….

Date:…….