Site Specific Arboricultural Method Statement

Land at Kebony House, Oak Hill Park, London NW3 8LP

A report to: Anatoly & Olga Alexeev, Kebony House, Oak Hill Park NW3 8LP

Date: 16th August 2019

Report No: WAS127 -AMS/2019 Rev.B

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Report Verification

This method statement has been undertaken in accordance with British Standard 5837:2012 "Trees in relation to design, demolition and construction - Recommendations".

Disclaimer

The contents of this report are the responsibility of Wassells Arboricultural Services Ltd. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Wassells Arboricultural Services Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

Validity of Data

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified and experienced arboriculturist to assess any changes to the trees and groups on site and to inform a review of the conclusions and recommendations made.

It should be noted that trees are dynamic living organisms that are subject to natural changes as they age or are influenced by changes in their environment. As such following any significant meteorological event or changes in the growing environment of the trees they should be re-assessed by a suitably qualified and experienced arboriculturist.

Introduction and Scope of Method Statement

This document has been produced to provide a method statement to ensure the protection of all retained trees that could potentially be affected by construction activity on the site.

This document shall be used to discharge condition 7 of the L.B. Camden decision notice dated 16th January 2019 – Ref: 2018/2166/P

The scope of this report follows the recommendations and guidance described within ***BS 5837: 2012 Trees in Relation to Design, Demolition and Construction – Recommendations*** which set out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.

This AMS will also recommend any required tree works to enable access and to mitigate potential damage from construction activity and for the future well-being of the trees concerned.

Abbreviations:

RPA = root protection area

CEZ = construction exclusion zone

CWA = construction working area (including materials storage)

AMS = arboricultural method statement

AS = Arboricultural Supervision

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Arboricultural Method Statement

Pre-commencement of project

- A pre-commencement site meeting is to be arranged by the site manager to ensure all tree protection measures are in place as described below
- Above meeting should involve local planning authority tree officer, site manager and project arboricultural consultant

Excavation within RPA of Retained Trees

Ref: Addendum 1 and Tree Protection Plan

- Excavation of foundation piers and ground beams for the buildings are within the reasonably close RPA of trees T5 & T6 plus trees T12 to T17, which are all semi-mature Sycamore trees.
- **ALL** excavation for support piers and below ground level beams to be carried out by hand and any roots encountered above 25mm in diameter are to be carefully exposed and severed correctly under the supervision of the AS if required.
- Large roots of 75mm and over are to be exposed carefully and covered with damp hessian prior to visit by AS to determine best method for protection or removal

Mini-pile Foundations

- Lay down protective matting (ref. Ground Protection System)
- Establish level platform suitable for mini-pile rig
- All 100-150mm dia. mini-piles to located beyond 2m radius from tree trunk (see plan CF-129-DR-1101)
- Careful excavation by hand for first 500mm to establish best location for mini piles to avoid tree roots (as per digging method and treatment of roots). Involve Arboriculturalist Supervision as necessary for found roots
- Identify suitable position for mini pile given found roots, to minimise impact on significant roots. Position mini-pile equipment in best position
- 100-150mm dia. mini-pile precisely driven into ground via hydraulic jack – depth to be defined by specialist sub-contractor (likely 6-8m deep)

Tree Protection Barriers & Construction Exclusion Zone

- The tree protection barrier shall be as per specification in figure 3 below and as shown on tree protection plan in addendum 2
- Barrier shall be 2.4 metre high ‘Heras’ style fencing with above ground stabilizing system firmly pegged to the ground
- Trunks of T6, T7 and T22 are to be protected by hoarding as described in that section of addendum 1 below

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Ground Protection of Existing Surfaces within Root Protection Area (RPA) of Nearby Trees

- See tree protection plan below in addendum 2
- Ground protection to be as described in that section of addendum 1 below and installed prior to start on site

Site Access and Construction Working Area (CWA)

- Site access shall be to the side of Kebony House and down the slope to the buildings construction area
- The CWA shall be the area as shown on the tree protection plan

Site Storage, Materials Preparation and Accommodation

- Site storage and mixing etc. not within the RPA of retained trees
- These requirements to be described within the construction management plan in conjunction with AS if required

Installation of Services

- The proposed service route for the foul drainage and other services takes the best route between trees T6 and T12 for minimizing impact on their root system. The marked-up plan CF-129-SK 1904-004 trenches rev. B applies – see addendum 2 below
- Surface water drainage is proposed to be piped to soak-away and shall be routed to minimize impact to nearby root zones
- Changes to the service routes will be carefully considered using the AS below to advise on protection of nearby trees prior to commencement on site of any new services routes proposed

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Access Facilitation Pruning & Tree Surgery/Removal Works

Schedule of Tree Works – all works below to be completed prior to start on site

Tree Number	Tree Species	Grading Category	Tree work recommendations
T10	Sycamore	U	Fell and remove. Grind out stump
T11	Sycamore	U	Fell and remove. Grind out stump
T5 & T6 T12& T13 T16 & T17	Sycamore	B as a group	Crown reduction and lifting if required to facilitate construction working. Any work required to be advised by AS prior to start on site.
T14 & T15	Holly	B as a group	Crown reduction and lifting if required to facilitate construction working. Any work required to be advised by AS prior to start on site.
T22	Yew	C	Crown reduction and lifting if required to facilitate construction working. Any work required to be advised by AS prior to start on site.

Tree work to be carried out to the following standards and guidelines:

- BS 3998:2010 Recommendations for Tree Work

- Tree pruning cuts will be carried out using the 'Natural Target Pruning' technique as defined by: *BS 3998:2010 section 7.2.5 and Fig. 2 The Pruning of Trees, Shrubs and Conifers: George E. Brown & Tony Kirkham – 2nd edition revised & enlarged 2004 and Section 3.1.27 of The Arboricultural Association Specification for Tree Works June 2008.*

- Crown clean involves removal of dead, diseased & dying wood from tree crown, thinning of overcrowded crown, and removal of Ivy and all epicormic growth within crown including stem & basal epicormic growth.

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Arboricultural Supervision (AS)

- AS shall be required during work within and adjacent to the RPA of retained trees. It must be undertaken at regular intervals with a written record of the meetings maintained with suitable photographic record in support.
- The AS must include a pre-construction commencement site visit, to be arranged by the Site Manager under instruction from Architects, and thereafter at specific events that affect the retained trees on site to enable sign-off by the AS. These are typically as follows:

1. Erection of tree protection fencing/barrier
2. Installation of ground protection to retained trees whose RPA are affected by the CWA
3. Start of Excavation/piling of foundations within the RPA of retained trees
4. Tree pruning requirements to prevent crown damage from construction activity
5. Start of Excavation/installation of paths, roads and car parking within RPA of retained trees
6. Installation of underground services within the RPA of retained trees
7. Tree condition survey on completion of construction work

Conclusion

Provided the recommendations shown above and the methodology for protection of any retained trees are followed, there will not be an effect on the current or future condition of those trees that are retained as part of this scheme.

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References

1. BS 5837:2012 Trees in Relation to Design, Demolition and Construction - Recommendations
2. BS3998:2010 Tree Work – Recommendations
3. NJUG Volume 4 Issue2 2007 – Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.
4. NHBC Standards – Section 4.2 Building Near Trees
5. British Geological Survey – London & the Thames Valley
6. Principles of Tree Hazard Assessment – Lonsdale 2001
7. Diagnosis of Ill Health in Trees – Stouts & Winter 2004
8. Pre-development Arboricultural Survey and Report – Wassells WAS/68 2017
9. Existing and proposed plans – Cooke Fawcett Architects

Declaration

This AMS is written and checked by Richard Wassell of Wassells Arboricultural Services Ltd. and provided without prejudice as an objective and professional assessment of the trees and site conditions described.

Signed: R.J. Wassell Date: 16.08.MMXIX

Richard Wassell. Director

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Addendum 1 – Tree Protection - Informatives

Ref: BS 5837:2012 in Tables C.1 & D.1of annex C & D

Protecting Root Zone of Trees (BS 5837:2012 section 6.2 Figs. 2 & 3):

The Root Protection Area (RPA)

This is the area surrounding a tree that is deemed to contain sufficient roots and rooting volume to maintain the trees viability in the future. The root system is typically concentrated in the uppermost 600 – 1200mm of the soil and is not necessarily symmetrical around the tree, being dependent on several factors such as water, nutrients, oxygen, soil penetrability and physical obstructions such as existing foundations or changes in level (terracing).

The RPA is a design layout tool that is deemed to be a minimum area around a tree where the protection of roots and soil structure are treated as a priority. This area is envisaged as and portrayed with a circle around each tree but where there appears to be restrictions to root growth the circle is reshaped to reflect more accurately the likely distribution of the rooting area of the tree concerned.

Key Points

1. AVOID building works within the RPA if possible but if not then carefully consider the following: where the RPA is likely to be severely affected because of site design constraints then felling and planting replacement(s) trees in a more suitable location on the site will need to be considered.
2. Where possible do not use strip foundations within the RPA, if necessary, consider using a trenching saw or excavate by hand to avoid ‘shatter damage’ to the root system.
3. Consider using piling techniques for foundations @ maximum 350 mm diameter with ground beams on or above the surface of the root zone.
4. Unless unavoidable, do not exceed entering the root zone by more than one fifth of RPA radius.
5. Do not trench tangentially across the root zone for footings and services unless it cannot be avoided.
6. Consider ‘no dig’ techniques for services installation, with radial service lines being preferable to tangential across the root zone. Where this is undertaken then boring must be carried out below 600mm deep.
7. Any hard surfacing, paths and roads need to have the same considerations for the RPA and as in the above points. Where possible paths and hard surfacing (patios etc.) need to be surface constructed (cellular) and semi-porous to allow water penetration and gaseous exchange into the root system of trees.

Excavation within Root Protection Area of trees

Where trees are to be retained then any proposed foundation, underground services work and hard surfacing such as roads/paths falling within the RPA of trees that are to be retained shall be kept as far away from tree stems as possible (SEE NOTE 1 ABOVE). Where any such works are necessary within the RPA there will be a requirement to dig carefully by hand and ensure any roots encountered of maximum 25mm in diameter shall be exposed and correctly pruned back by a competent Arborist. Where larger roots are encountered of above 25mm in diameter then advice from the Arboricultural Supervisor (AS) for the site must be sought prior to any work being undertaken.

Any roots exposed/ pruned back as part of the above operation shall NOT be left exposed to drying out. All roots exposed/pruned shall be either covered with damp Hessian sacking prior to backfill or backfilled/covered immediately with a suitable open and free draining compost/loam.

Site Hoarding

Site hoarding shall be no closer than 1.5 metres away from the stem of retained trees and consist of 2400mm high x 1200mm wide x 20mm thick plywood sheets supported by minimum 100mm square posts and 100 x 50mm rails with posts at 2.5 metre centres.

Post holes for site hoarding that are required within the RPA of nearby trees shall be dug by hand and are to be a maximum of 300 x 300mm and 450mm deep

Posts to be supported in the ground with 1 bag of “PostCrete” per post or use of “Meta Posts” if applicable

Ground Protection System Specification:

- Level area of RPA concerned by blinding with sharp sand at maximum depth of 50mm
- Lay geo-textile membrane such as ‘Terram’ to cover area concerned
- Cover geo-textile with maximum of 100mm MOT Type 1 sub-base
- Retain MOT type 1 with edge restraint such as 30 x 100mm edging board pegged every 2 metres to prevent migration of the sub-base
- OR
- Use 20mm minimum thickness plywood sheets instead of MOT type 1 and ensure they are secured from moving

Other manufactured ground protection systems are available such as Eve Tracking and can be used as an alternative where suitable.

Addendum 2 – Tree Protection Plan & site plans

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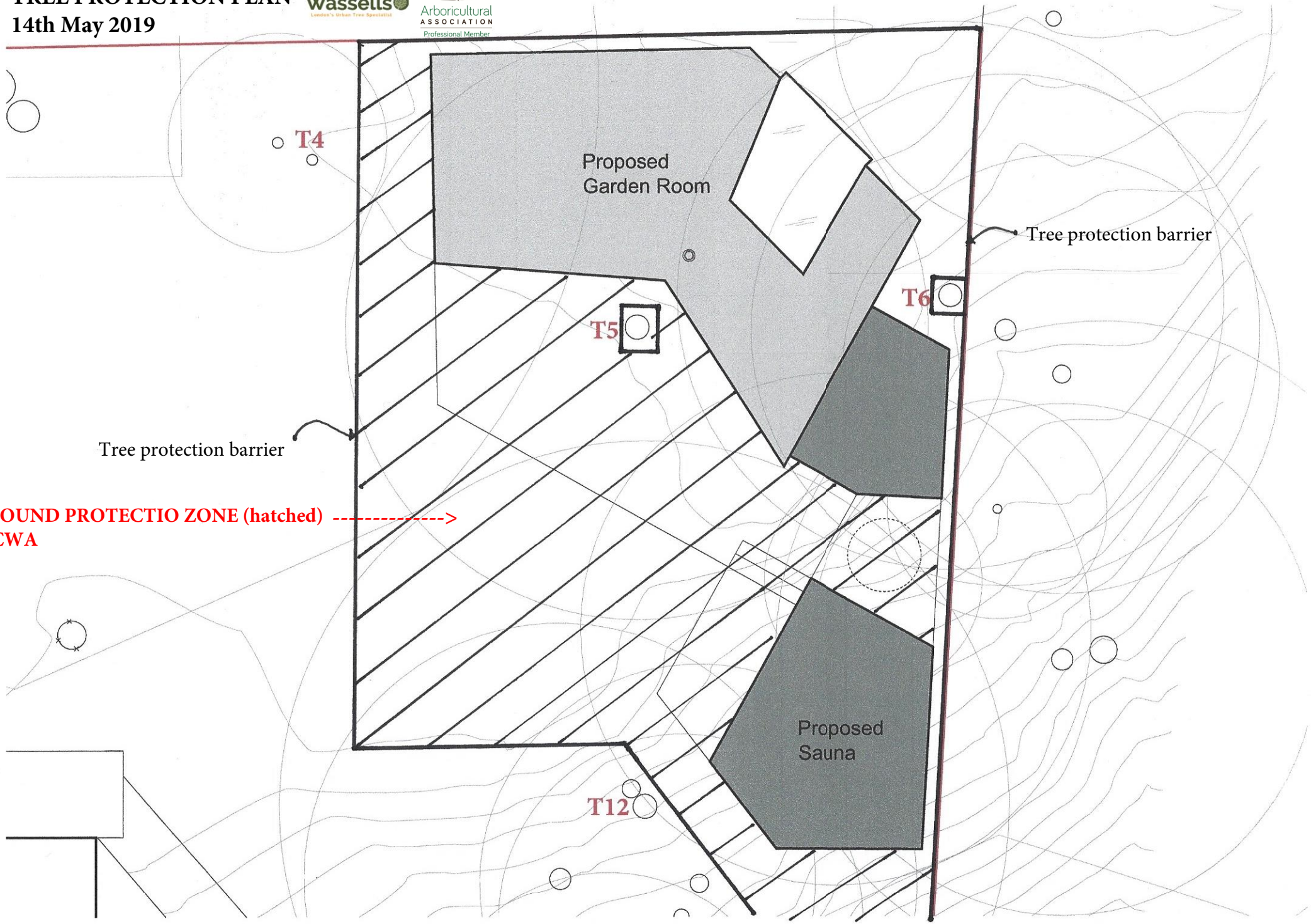
TREE PROTECTION PLAN
14th May 2019

Wassells
London's Urban Tree Specialist

Arboricultural Association
Professional Member



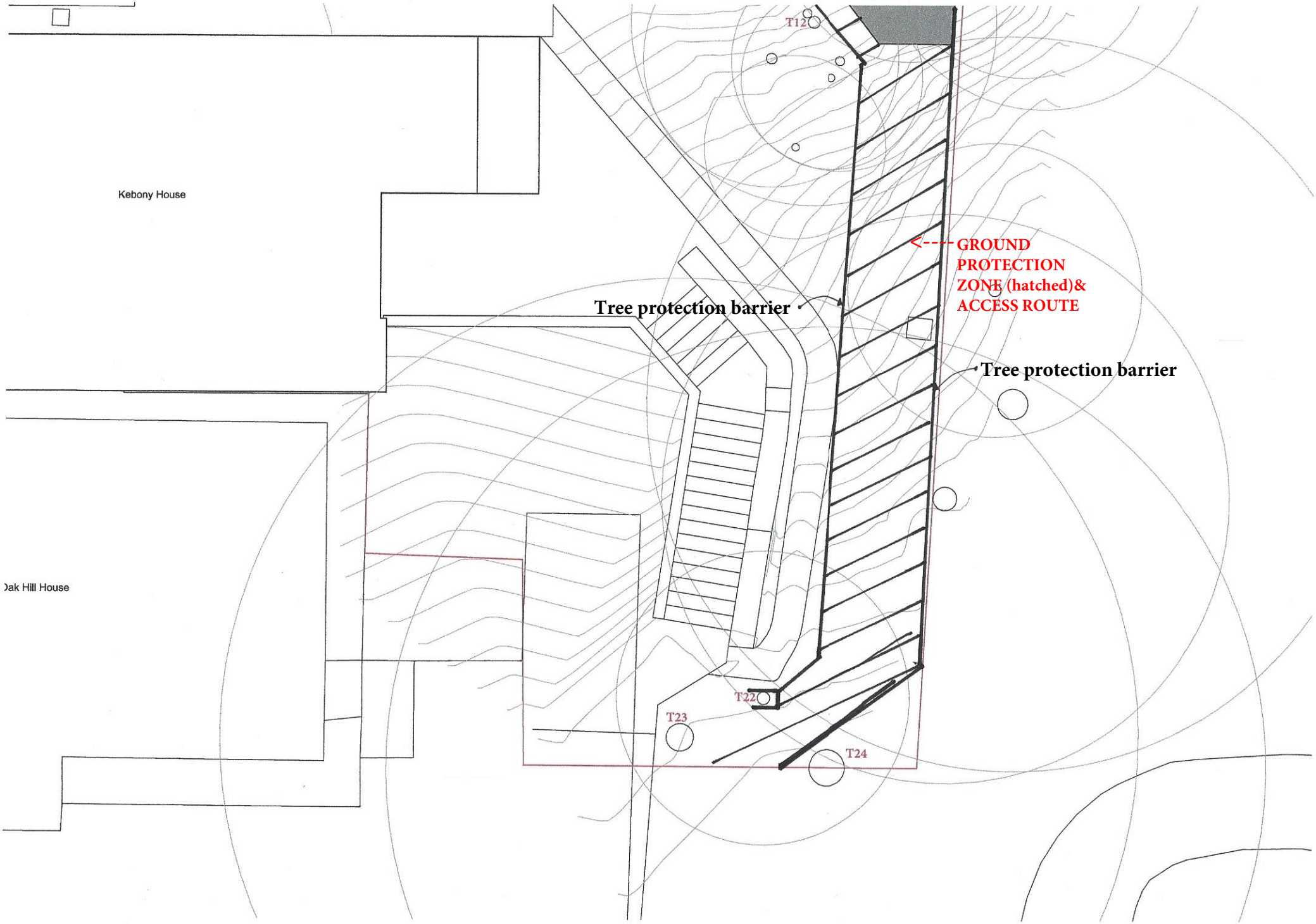
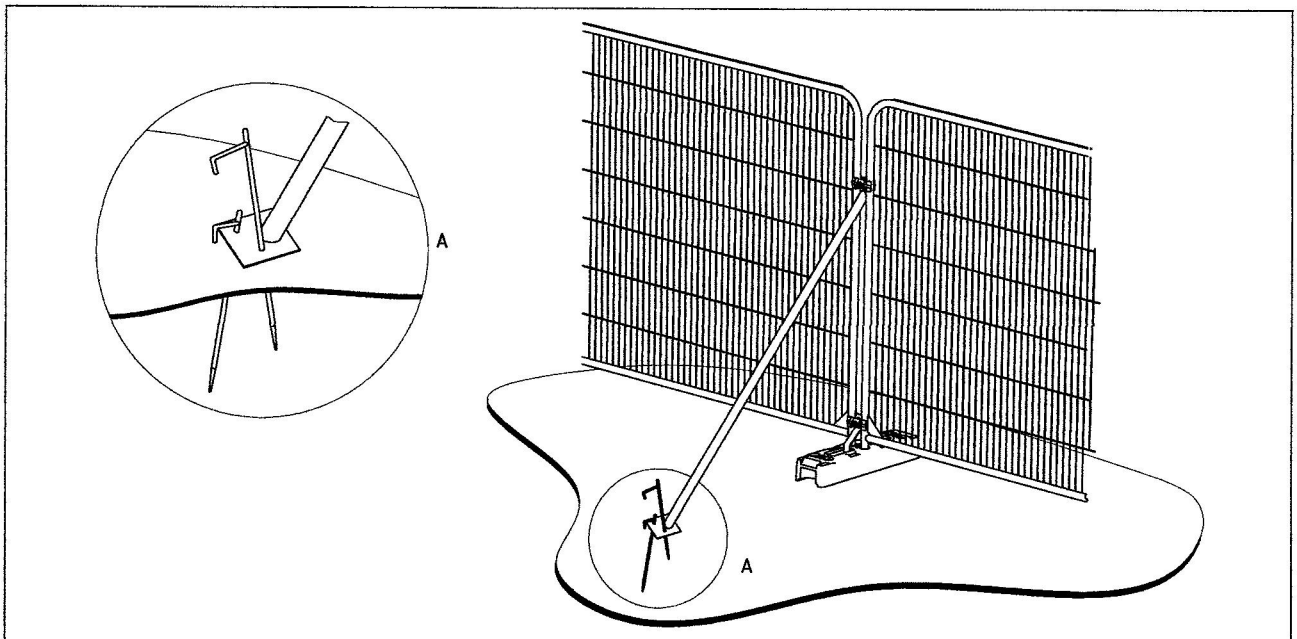
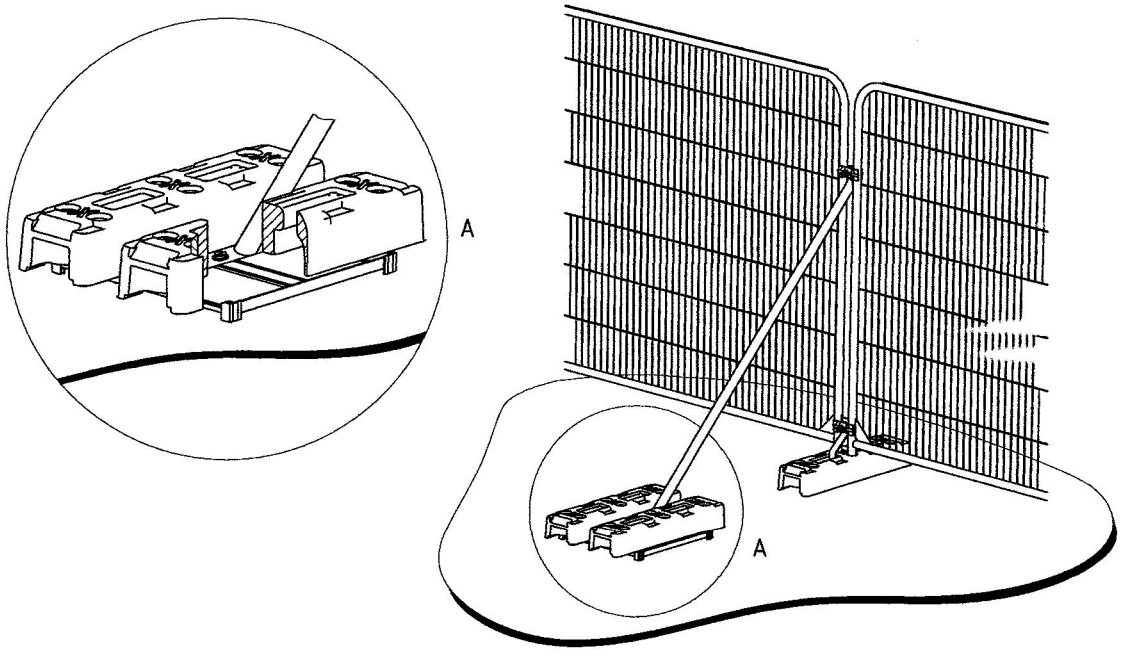

Kebony House
Oak Hill House
T12
T22
T23
T24
GROUND PROTECTION ZONE (hatched)& ACCESS ROUTE
Tree protection barrier
Tree protection barrier

Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

6.2.3 Ground protection during demolition and construction

6.2.3.1 Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

CONSTRUCTION EXCLUSION ZONE

NO ACCESS

PLEASE REPORT IMMEDIATELY ANY DAMAGE TO TREES OR FENCING TO THE SITE MANAGER

TO BE LAMINATED SIZE A3 AND FIXED TO EVERY TREE PROTECTION BARRIER PANEL WITH CABLE TIES