Draft Arboricultural Method Statement

Mr M Wood

28 Redington Road, Hampstead, NW3 7RB

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REVISION HISTORY

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PURPOSE OF DOCUMENT

This report has been commissioned to provide details on how the retained trees will be protected and managed during the development process at 28 Redington Road in Hampstead. This includes a Tree Protection Plan that provides illustrative guidance on the tree protection measures that are required for the development of the site.

The following explanations relate specifically to this site and they should be read in conjunction with the TPP.

A copy of this report must be kept on site and be permanently available for the duration of the development. It can be:

- Included in the tender documents to identify and quantify the tree protection and management requirements;
- Used to plan the timing of site operations to minimise the impact of trees; and
- Reference on site for practical guidance on how to protect trees.

1. SCOPE OF WORKS

1.1 The development proposal is for replacement of north-westerly extension including new windows at ground floor on northwest elevation; alteration and enlargement to south-eastern wing to include first floor extension; rebuild and extend rear extension to include lantern rooflight; enlargement of 2nd floor including raising height of rear gable, erection of two dormers and rooflights to north west elevation; removal and relocation of chimneys; solar panels to rear roof and glazed balustrade to 3rd floor roof terrace; alteration and enlargement of front porch including limestone cladding and alteration to front steps and door; excavation of lower ground floor level to lower by 0.5m and excavation of front lightwell; alterations to windows, ground floor bay and erection of balcony at first floor level, all on the rear elevation; erection of entrance gates and railings to existing garden wall; and alterations to landscaping.

1.2 The following arboricultural protection measures area required:

- Arboricultural Clerk of Works supervision
- Tree Protection Fencing (TPF)
- Specific tree protection
- Specific construction techniques

1.3 No trees require removal.

1.4 A total of three trees and one group of trees (T1, T7, T8 & G35) will require facilitation pruning.

1.5 There is no requirement for any of the following within Root Protection Areas (RPAs) of retained trees:

- Fires
- Herbicide use

2. ARBORICULTURAL ACTIVITIES & SEQUENCE

Arboricultural Requirements	Timing & Importance	Details
ACoW Supervision	Level of ACoW supervision will be determined at the pre-commencement meeting.	1. Pre-commencement meeting 2. Installation of barriers 3. Installation of temporary/permanent ground protection 4. Specific protection measures 5. Removal of temporary ground protection 6. Removal of barriers 7. Replacement planting
Tree Pruning	Pre-construction/demolition	The following trees require facilitation pruning: • T1 – Crown lift to 3.5m above ground level to eastern canopy • T7 – Crown reduction of 2-3m to southern and western canopy • T8 – Crown reduction of 2-3m to southern canopy • G35 – Target pruning of overhanging limbs of southern canopy
Tree Protective Fencing	Fencing MUST be erected and inspected by ACoW before site works can start.	Heras 151 fencing will be require to protect retained trees. Fencing will require adjusting between construction phases. Any changes to fencing will require ACoW input.
Specific Protection Measures	ACoW advice must be sought before operations commence.	ACoW supervision will be required for the following site operations: 1) Demolition of rear garden wall; 2) Removal of rear patio, water feature and retaining wall; 3) Extension of rear elevation; 4) Construction of new light well at property frontage; 5) Replacement of front garden retaining wall; and 6) Construction of new steps to 'welcome area', front door and garage.

Key Responsibilities:

- It is the responsibility of the main contractor to ensure that tree protection measures are adhered to all at times.
- It is the responsibility of the main contractor to ensure that all site personnel full understand the protection measures of the site.
- It is the responsibility of the main contractor to ensure that the project arboriculturist is contacted if there are any issues related to trees.

3. ARBORICULTURAL SUPERVISION

3.1 An ACoW will be appointed by the MWC to advise on the tree management for the site and to attend:

- The pre-commencement meeting before any works start;
- Regular supervision visits; and
- As needed to oversee specific works that could affect trees.

3.2 Additionally the ACoW will have a supervisory input into the following operations:

- Site preparation, including tree works
- Installation, maintenance and removal of barriers
- Installation of new structures

Sequencing and Timing

3.3 Effective tree protection relies upon following a local sequence of events and arboricultural inspection/supervision. Table 1 provides an indication to the likely sequencing and supervision requirements of the retained ACoW.

Table 1: Sequencing and Supervision

Stage	Action	Arboricultural Input Required
1	Pre-commencement meeting	Attend
2	Tree Works	Inspect
3	Tree Protective Fencing	Attend
4	Specific tree protection measures	Supervise
5	Demolition	Attend
6	Development Phase	Attend
7	Remove tree protective fencing	Attend

3.4 The retained ACoW's initial role is to liaise with the Main Works Contractor (MWC) and Local Planning Authority (LPA) to ensure the tree protection measures are fit for purpose and in place before any works commence on site. Once the site is working that role will switch to monitoring compliance with arboricultural planning conditions and advising on any tree problems that arise or modifications that become necessary.

3.5 It is the MWC's responsibility to ensure that details of this AMS and any agreed amendments are known and understood by all site personnel. An AMS Briefing Statement has been prepared and attached to this document, see **Appendix 1**. This document provides summarised details of the key protection measures contained within this document. A copy of this should be made available to all staff and used in any site inductions.

3.6 The final details of supervision and the frequency of inspection visits will be agreed at the pre-commencement meeting. The supervision arrangement will be sufficiently flexible to allow the supervision of all sensitive works as they occur.

3.7 The ACoW will make a record of the visits and these will be attached to the site copy of the AMS for inspection. A further copy will be sent to the LPA. The purpose of these written records is

firstly to provide proof of compliance that will allow the MWC to robustly demonstrate adherence to best practice in the event of any dispute. Secondly it will help the LPA efficiently discharge the relevant planning conditions.

Pre-commencement Meeting

3.8 A pre-commencement site meeting involving the land owner, representative of the development company, ACoW, contractors and engineers (as appropriate), the relevant LPA officers will be held to ensure that all aspects of the tree protection processes are understood and agreed.

3.9 The meeting is where the details of the programme of tree protection will be agreed and finalised, which will then form the basis of any supervision arrangements between the ACoW and the MWC.

3.10 The ACoW will send a record of the meeting to all parties.

3.11 The ACoW will request that the MWC signs a Statement of Undertaking (SoU). This document confirms that the contractor fully understands the tree protection measures required throughout the construction process and accepts full responsibility for the protection of retained trees. A copy of the signed document will be kept onsite throughout the duration of the project. A copy will also be sent to the LPA officer for reference.

3.12 An example of this document can be found in **Appendix 2**.

4. TREE PRUNING

Tree Works

4.1 The details of tree works have been set out in Table 2 below. Tree numbers have been colour coded for ease of cross reference with the Tree Protection Plan.

Table 2: Tree Works

Tree Number	Pruning
T1	A crown lift to 3.5m above ground level to the eastern canopy will be required to facilitate machinery access during demolition and construction phases.
T7	A crown reduction of 2-3m will be required to the southern and western canopy to facilitate sufficient space to enable the redevelopment works.
T8	A crown reduction of 2-3m will be required to the southern canopy to facilitate sufficient space to enable the redevelopment works.
G35	Target pruning of overhanging limbs of the southern canopy of this group will be require to facilitate sufficient space to enable the redevelopment works. Pruning will be limited back to the boundary line.

4.2 Obvious pruning to allow the installation of the structure has been listed, but additional minor pruning may be necessary to address unanticipated local problems with individual branches. Any additional works will be assessed and authorised as necessary by the retained ACoW. Where necessary, the LPA tree officer will be notified of any additional tree works.

4.3 All pruning works will be conducted in accordance with BS3998:2010 *Tree Works – Recommendations*.

5. BARRIERS AND GROUND PROTECTION

The Construction Exclusion Zone

5.1 The primary means of protecting the RPA of trees is through the use of barriers formed by protective fencing. The enclosed area is the Construction Exclusion Zone (CEZ). The CEZ has been marked on the TPP by orange diagonal hatching.

5.2 The CEZs are to be afforded protection at all times and will be protected by fencing. The type of fencing is detailed below.

5.3 No works will be undertaken within any CEZ that causes compaction to the soil or severance of tree roots.

Tree Protection Fencing

5.4 A protective fence will be erected around the trees, prior to the commencement of any site works. This includes any materials or machinery brought onto site, development or the stripping of soil.

5.5 The fence is to be sited in accordance with the TPP enclosed with this method statement. This is shown as a black dashed line with diagonal orange hatching indicating the enclosed CEZ.

5.6 The precise form of fencing can vary provided it is fit for purpose and prevents damaging activities within the CEZ. For a proposal of this nature, the Heras 151 system of fencing will provide the necessary protection to the CEZ. Details of this fencing can be seen in **Appendix 3**.

5.7 All Heras fence panels will be joined using a coupling system such as the Heraslock Anti-tamper coupler, using a minimum of two clamps per panel side. Each panel will be fitted securely to a rubberised foot that will in turn be pinned to the ground using metal stakes driven a minimum

5.8 The fence will have signs attached to it stating that it defines a CEZ and that no works are permitted within the fence. No notice boards, cables or other services will be attached to any tree. An example of a fencing sign is provide in **Appendix 4**.

5.9 After the protective fencing has been erected, the retained ACoW will visit the site. The purpose of the visit will be to check that the fencing has been correctly installed so as to provide protection to the trees. The LPA tree officer may also be invited to inspect the tree protection measures prior to any works commencing.

5.10 The retained ACoW will provide a written report confirming satisfactory completion of this task. A copy of this report will be sent to the LPA.

5.11 The protective fencing may only be removed following completion of all construction works.

6. SPECIFIC TREE PROTECTION MEASURES

6.1 The following site operations in close proximity to six trees (T1, T7, T8, T9, T10 & T11) will require arboricultural input:

1) Demolition of rear garden wall;
2) Removal of rear patio, water feature and garden retaining wall;
3) Extension of rear elevation;
4) Construction of new light well at property frontage;
5) Replacement of front garden retaining wall; and
6) Construction of new steps to 'welcome area', front door and garage.

6.2 Due to the nature of the existing site, there are limited tree protection options other than the works being supervised by the retained ACoW. This will ensure that any tree related matters can be addressed onsite in a timely manner and with minimal adverse impacts to the retained trees.

6.3 It is anticipated that Tree Protective Fencing will require adjustment to enable the various construction activities. Any adjustment to the fencing will require consultation with the retained ACoW before works can commence.

6.4 In order to adequately protect trees the listed operations above must be completed in accordance with the following details:

- The removal of existing hardstanding and low retaining wall will be done using hand tools or by machinery working remote from RPAs or from on top of existing hardstanding. The underlying subbase will be retained in situ and the underlying soil will remain free from harm.
- Excavations for rear extension, new light well and new steps to property frontage must be undertaken by machines sited from on top of existing hardstanding. The machine is to work slowly under the guidance of the ACoW. Debris may be removed from the RPA manually, but it must be lifted out by machines provided this does not disturb the RPA.
- The demolition of existing garden walls will be undertaken to ensure minimal disturbance to the RPAs of retained trees. Appropriate tools for manually removing debris may include a pneumatic breaker, crow bar, sledgehammer, pick, mattock, shovel, spade, trowel, fork and wheelbarrow. Secateurs and a handsaw must all be available to cut any roots that are exposed at clear growth points under guidance of the ACoW.
- The demolition and replacement of retaining walls will be undertaken to ensure that the existing rooting medium retains the ability to support the structural stability of existing trees. It may be possible to replace the wall and foundations without significantly disrupting the existing soil structure. However, should stabilisation techniques be required the following should be adhered too:

- Any excavations to the rear of the existing boundary wall to enable a suitable battered slope would require advice from the retained ACoW before works commence and all works must be supervised. These excavations will be undertaken either using hand tools or airspade.
- Should additional stabilising structure be required, small driven sheet piles would be installed from machinery working from existing hardstanding or from on top of temporary ground protection. Advice must be sought from the retained ACoW before works commence and all works must be supervised.
- Should structural roots (i.e. >100mm diameter) be exposed during any excavation process these will be retained wherever possible. Should this require removal, advice will be sought from the retained ACoW. Where new foundations are required in close proximity to retained roots the position should be sufficiently flexible to accommodate root growth and a supporting plinth will be used to bridge roots (where necessary).

- Great care must be taken throughout these operations to ensure that there is limited damage to the root system.
- Severance of roots over 25mm should be avoided unless advised by the retained ACoW. Where roots will remain exposed for any period of time wrapping of roots using hessian should be implemented.

Additional precautions outside the exclusion zone

6.5 Any risk from activities outside RPAs but close enough to have an impact will be assessed during the day-to-day running of the site, and appropriate precautions put in place to reduce that risk.

6.6 It is a presumption of this report that all RPAs that have been identified for protection but which lie outside of the protective fencing, will be protected from soil degradation at all times during construction activity.

6.7 Further details for working within the RPA are also provided in **Appendix 5**.

7. DEMOLITION

7.1 All demolition works in close proximity to trees will be undertaken in accordance with the following methodology:

- Demolition works will be undertaken using a 'top down, pull back' technique. This will minimise the potential of physical harm to retained trees.
- Care must be taken to avoid physical contact with the canopies of offsite trees during the demolition works. A banksman should be used where such conflicts could occur and the retained ACoW will advise if localised pruning can be undertaken to facilitate the demolition works.
- All machinery used to undertake demolition works will be sited outside the RPAs of existing trees or working from on top of existing hard standing.
- Debris may be removed from the RPAs of retained trees by using machinery with a long reach or through pedestrian access. Care must be taken to avoid damage to the existing ground surface to ensure the rooting environment remains sustainable post demolition.
- The removal of existing hardstanding or foundations within the RPAs of retained trees will be undertaken using hand tools only. Appropriate tools for manually removing debris may include a pneumatic breaker, crow bar, sledgehammer, pick, mattock, shovel, trowel and fork.
- Severance of roots over 25mm diameter should be avoided unless advised by the retained ACoW. Secateurs and a handsaw must be available to deal with any roots that are exposed. Where roots will remain exposed for any period of time the roots must be wrapped in hessian sacking for protection.

8. DEVELOPMENT

8.1 Once all tree works and protective fencing have been completed, the MWC can commence the on-site preparation works and construction can begin.

Site Storage, Cement Mixing and Washing Points

8.2 No storage of materials will take place within a CEZ.

8.3 No mixing or storage of materials will take place up a slope where they may leak into a CEZ. Where contours of the site create a risk of polluted water running into RPAs, precautionary measures of using heavy duty plastic sheeting and sandbags with the ability to contain accidental spillage will be put in place to prevent contamination.

8.4 Water will be kept readily available on site and will be used to flush split materials through the soil and avoid contamination of tree roots.

8.5 At the time of any spillage the main contractor will contact the retained ACoW for advice.

Contractors Parking

8.6 Contractors parking will not be within or in close proximity to a CEZ.

Utility Services

8.7 There is no requirement for any service to be installed within a CEZ or RPA of any retained tree on this site.

Fires

8.8 No fires will be lit on this site.

Use of Herbicides

8.9 There is no requirement of any herbicide to be used on this site.

9. POST DEVELOPMENT

Completion Meeting

9.1 Upon completion of all works specified above and all procedures detailed, the ACoW will visit the site and may invite the LPA tree officer to meet on site to discuss the process and agree any final remedial works which may be required.

Landscaping Within the Tree Canopies

9.2 The final tidying up and reinstatement can only be carried out when all the protective measures have been removed. This means great care is required by the contractors to observe tree protection measures.

9.3 No machines can be used within the RPAs. The use of rotavators is specifically prohibited.

9.4 All soil level variations required within the RPAs of retained trees to enable the agreed landscaping works must be agreed and supervised by the retained ACoW/Landscape Architect.

10. RESPONSIBILITIES

10.1 It is the responsibility of the MWC to ensure that the planning conditions attached to planning consent area adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.

10.2 The MWC will be responsible for contacting the LPA at any time issues are raised related to the trees on site.

10.3 If at any time pruning works are required advice must be sought from the ACoW first, and if required permission obtained from the LPA and then carried out in accordance with BS3998:2010 Tree Works – Recommendations and industry best practice.

10.4 The MWC will ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective fences will remain in position until completion of ALL construction works on the site.

10.5 The fencing and signs must be maintained in position at all times and checked on a regular basis by an on-site person designed that responsibility.

10.6 The MWC will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

11. CONTACTS

11.1 Table 4 shows a list of all relevant contacts for this development. This table will be completed once the pre-commencement meeting has been undertaken.

Table 3: Development Contacts

Title	Name	Position	Contact
Main Works Contractor			
Agent/Architect			
LPA Tree Officer			
Site Manager/Foreman			
ACoW			
Landscape Architect			
Tree Surgeon			

THIS AMS IS NOT A CONTRACT. THE RETENTION OF A QUALIFIED ARBORICULTRALIST FOR SUPERVISION AND MONITORING MUST BE AGREED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY.

Stephen Westmore MSc BSc (Hons) MArborA MICFor
Senior Arboricultural Consultant

12. APPENDICES

Appendix 1: AMS Briefing Statement

Arboricultural Method Statement – Briefing Statement

28 Redington Road, Hampstead, NW3 7RB

Purpose

The purpose of this briefing document is to ensure that all contractors, sub-contractors and any other personnel working on the 28 Redington Road project are fully aware of the purpose of the tree protection measures that have been implemented on site.

Key Messages

- The protection of the retained trees and hedges on site is a critical requirement of both the client and the Local Planning Authority.
- The site has been designed with key green features being retained and protected. Any breach of the protection measures has the potential to damage those features and therefore disrupt the overall vision for the site.
- A detailed Arboricultural Method Statement has been prepared. This details the requirements for ensuring that retained trees are protected. This document is available on site at the site office and should be read and understood by all personnel working on the site.
- A Tree Protection Plan has been prepared to provide graphical illustration as to the extent of tree protection measures.
- The approved Tree Protection Fencing is Heras panels to protect areas that are being actively worked.
- All Tree Protection Fencing will have a sign attached at regular intervals to state that it is Tree Protective Fencing.
- No Tree Protection Fencing can be moved, opened, or breached in any way without the prior written approval of the project Arboriculturist.
- The area within the Tree Protective Fencing is a Construction Exclusion Zone. This means that there must be no machinery, no materials, and no personnel within the area. Unauthorised access will be a breach of planning conditions and could lead to enforcement notices from the Local Planning Authority.
- Where additional tree works are required, there may be a requirement to obtain input and approval from: the client; the Local Planning Authority; the project Ecologist; and/or the project Landscape Consultant. If any additional works are required, as much notice as possible must be given to ensure that there are no delays to the works programme while the necessary approvals are obtained.

Project Arboriculturist: Steve Westmore
Contact: 07805092844 / Stephen.westmore@lgluk.com

Appendix 2: Statement of Undertaking

STATEMENT OF UNDERTAKING

I confirm that I have read and fully understood the tree protection measures that have been detailed in the Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) that have been provided for 28 Redington Road. These documents have been provided to ensure that retained trees on the site are protected at all times during the construction process, and to assist the MWC/construction company maintain compliance with the planning conditions.

I will ensure that tree protection measures are in accordance with the AMS and TPP throughout the construction process. I will also ensure that all site personnel are aware of the tree protection measures that are required throughout the site.

Where issues arise from tree related matters I will consult the retained Arboricultural Clerk of Works (ACoW) before undertaking any activities that may cause damage to the protected trees.

Position: ……..

Name: ……..

Signature: ……

Company: ……

Date: ……..

Approved by:

Position: ……..

Name: ……

Signature: ……..

Company: ……..

Date: ……

heras® 151 and 151steadfast system

round top panel with anti-climb mesh
high visibility orange blocks
steadfast strut
anti-tamper coupler
fully tested and certificated
health and safety compliant (HSG 151)

Having invented the original concept of temporary fencing back in the 80's, Heras is proud of its reputation as a true innovator.

Our latest solution for securing site perimeters and protecting the public has been phenomenally successful since its launch, and offers the ultimate market leading temporary fencing system.

Our safest, most stable and most secure system ever offers you total peace of mind, and unrivalled performance.

You can be sure that by installing the Heras® 151 Steadfast System (patent pending), you are conforming fully to the latest HSE Guidelines on "Protecting the Public" from the dangers of construction sites.

Heras has campaigned widely over recent years against falling product standards, and has consulted closely with senior figures across the construction industry to ensure our products meet and exceed your expectations. This latest innovative system means you should never again need to compromise on:

- Value for money
- Quality
- Performance
- Design
- Ease of installation.

All backed up with unbeatable service from our nationwide branch network – deal direct with Heras – your safety first fencing supplier.

Fully Tested and Certificated

- Extensive independent testing by Sheffield Hallam University has proved the performance of the system, resisting wind speeds well in excess of gale force.
- The HSE has confirmed that the system meets all of the guidelines in the HSG 151 Publication "Protecting the Public - Your next move".
- In turn, therefore, we can offer customers a certificate of compliance when they purchase this system from Heras.
- It is your responsibility to ensure the system is correctly installed and fixed. For help and advice, contact your nearest branch.

151 system

The key components of the Heras 151 system are as listed.

Round Top Panel with Anti-Climb Mesh

- The strongest panel on the market, with 3 sides formed from a continuous length of tube, eliminating the top corner weld, often the weakest point in traditional panel design.

High Visibility Orange Block

- Permanently coloured with a durable UV stabilised "hi-viz" casing and filled with solid high density concrete.
- Effectively highlights any potential trip hazard.
- Beware of cheap imitations – painted coatings will chip and peel.

Heraslock® Anti-Tamper Coupler

- Providing additional security, these couplers can only be removed with the use of the specialist tool.

151 steadfast system

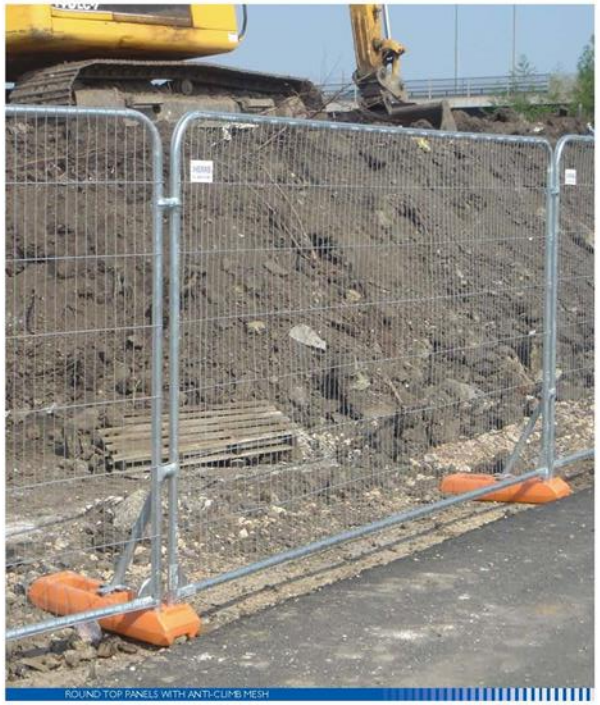
The Heras 151 steadfast system incorporates all the benefits of the 151 system, with the addition of the patented...

Heras® Steadfast Strut

- The unique design of this clever strut dramatically increases the stability of the fence.
- The strut fits neatly within the high visibility block allowing a neat and compact solution, and acts as an integrated anti-lift device.
- 3 additional fixing holes incorporated into the design allow for soil pins and thunderbolts, dependent on ground conditions.

Optional Extras

- Heras® Steadfast Safety Strips with reflective coating can be fitted in minutes to highlight site dangers.
- Front support brackets allow vastly improved performance on softer ground conditions and fit quickly and easily into the high visibility blocks.



ROUND TOP PANELS WITH ANTI-CLIMB MESH

5

6

7

1. Front stabiliser.
2. High visibility footblocks.
3. Round top panel.
4. Steadfast strut.
5. Anti-tamper coupler.
6. Optional steadfast safety strips.
7. Anti-climb round top panel with steadfast struts to increase stability.

1

2

3

4

Our latest solution for securing site perimeters and protecting the public has been phenomenally successful since its launch, and offers the ultimate market leading temporary fencing system.

LOCKHART GARRATT

Appendix 4: Example of Protective Fencing Signage

(Lockhart Garratt is able to provide useable, weather-proof copies of this sign if required, for attaching to the protective fencing. If required, please contact us for further details).

Appendix 5: Site Guidance for working in the RPA

a) What is the purpose of this guidance?

This guidance sets out the general principle that must be followed when working in the RPA. Where more detail is required, it will be supplemented by illustrative specifications in other appendices to this document. Before work starts on site, the purpose of this guidance is to demonstrate to the LPA that tree protection issues have been properly considered and to provide a written record of how they will be implemented.

Once the site work has started, this guidance is specifically for the site personnel to help them understand what has been agreed and explain what is required to fully meet their obligations to protect trees. All personnel working in the RPA must be properly briefed about their responsibilities towards important trees based on this guidance.

b) What are the RPAs?

RPAs are the areas surrounding important trees where disturbance must be minimised if they are to be successfully retained. All RPAs close to the construction area are identified on the Tree Protection Plan attached to this report. Damage to roots re degradation of the soil through compaction and/or excavation within the RPA will damage the tree. Any work operations within the RPA must be carried out with great care if trees are to be successfully retained.

c) When should this guidance be followed?

Anyone entering a RPA must follow this guidance if the trees are to be retained unharmed. Anyone working in a RPA must take care to minimise excavation into existing soil levels and limit any fill or covering that may affect soil permeability. There are two main scenarios where this guidance must be followed when entering and working within a RPA:

i. Removal of existing surfaces/structures and replacement with new surfaces, structures or landscaping.

ii. Preparation and installation of new surfacing structures and/or landscaping.

d) Where does this guidance apply?

This guidance should always be read in conjunction with the site plans illustrating the areas where specific precautions are necessary. Each area where precautions are required is annotated on the plans as identified on their keys. All plans are illustrative and are intended to be interpreted in the context of the site conditions when the work commences. All protective measures should be installed according to the prevailing site conditions and agreed as satisfactory by the appropriate supervising officer before any demolition or construction works commence.

e) What references is this guidance based on?

This guidance is based in the assumption that the minimum general standards for development issues are those set out in BS5837 (2012): Trees in relation to design, demolition and construction – Recommendations, and the NJUG Vol.4 Issue 1: Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.

f) Preventing adverse impact to the RPA beyond the immediate work area

Any part of the RPA beyond the agreed work area must be isolated from the work operations by protective barriers or ground protection to at least the minimum standard described in BS5837 for the duration of the work.

g) Excavation and dealing with roots

All excavation must be carried out carefully using spades, forks and trowels, taking care not to damage the bark and wood of any roots. Specialist tools for removing soil around roots using compressed air may be an appropriate alternative to hand digging, if available. All soil removal must be undertaken with care to minimise the disturbance of roots beyond the immediate area of excavation. Where possible, flexible clumps of small roots, including fibrous roots, should be retained if they can be displaced temporarily or permanently beyond the excavation without damage.

If digging by hand, a fork should be used to loosen the soil and help locate any substantial roots. Once the roots have been located the trowel should be used to clear the soil away from them without damaging the bark. Exposed roots that are to be removed should be cut cleanly with a sharp saw or secateurs 10-20cm behind the final face of the excavation.

Roots temporarily exposed must be protected from direct sunlight, drying out and extreme temperatures by appropriate covering. Roots 2.5-10cm in diameter should only be cut in exceptional circumstances. Roots greater than 10cm in diameter should only be cut after consultation with the appropriate supervisory officer.

h) Arboricultural supervision

Any work within the RPA requires a high level of care. Qualified arboricultural supervision is essential to minimise the risk of misunderstanding and misinterpretation. Site personnel must be properly briefed before any works commence.

Ongoing work must be inspected regularly, and on completion, the work must be signed off by the arboriculturist to confirm compliance by the contractor. In the context of this guidance, an appropriate supervising officer would be an arboriculturist.

Installation of new surfaces in RPAs

a) Basic Principles

New surfacing is potentially damaging to trees because it may require changes to existing ground levels. This can result in damage to the soil structure affect the efficient exchange of water and gases in and out of the soil. Mature and over mature trees are much more likely to suffer as a result of these changes. These impacts can be minimised by reducing the extent of changes within the RPA. The most suitable surface will be one that is permeable (allowing the movement of water and gas), load bearing (to avoid compaction) and requires little or no excavation (to limit root damage). The actual specification is an engineering issue that needs to be addressed by a suitably qualified professional, and is beyond the scope of this report.

b) Establish the depth of excavation and surface gradient

The precise location and depth of roots within the soil is unpredictable and can only be established once digging has commenced. Ideally, all RPAs should be no-dig, but this is often not possible on undulating surfaces. New surfacing normally requires an evenly graded sub-base layer, which can be made up to high points with granular, permeable fills such as crushed stone or sharp sand. This sub-base must not be compacted. Some limited excavation may be required to achieve this, and this is not necessarily damaging to trees if it is done carefully and no large roots are cut. The top 5mm of soil on grass surfaces is unlikely to contain any tree roots and therefore the removal of this will not impact the tree. It may be possible to dig deeper than this depending on local conditions, but this would need to be assessed by the retained ACoW.

On undulating surfaces, finished gradients/levels must be planned with sufficient flexibility so as to allow changes to occur if the excavation of high points reveals unexpected large roots. If roots are less than 25mm in diameter, it would normally be acceptable to cut these. However, for roots over 25mm diameter, cutting them may cause damage to the tree and further excavation may not be possible. In this case, the surrounding levels must be adjusted to take account of these high points, by filling with suitable material. If this is not possible and it is necessary to cut larger roots, discussions should be held with the retained ACoW before any final decision is made.

c) Base and finish layer

Once the sub-base layer is finished, the load-spreading surface is installed on top, without compaction. Generally, the load-spreading surface will normally be cellular and filled with crushed stone – care must to be taken as different products produce different results, and the detail must be confirmed prior to installation. Suitable finishes included washed gravel, permeable tarmac or permeable block paving. For lightly loaded surfaces such as pedestrian footpaths, preformed concrete slabs may be appropriate if the sub base is prepared as detailed above.

d) Edge Retention

Conventional kerb retention set in concrete trenches is likely to cause damage to the roots and should be avoided. Effective edge retention within the RPA must be custom designed to avoid significant excavation in to existing soil surfaces. Generally, the use of pre-formed edging secured by metal pins or wooden pegs will be sufficient to ensure minimal impact on the trees.

e) Installing new surfacing on top of existing surfacing

It may be possible/preferable in some instances to use existing surfaces as the base for a new surface. This will not normally result in any significant excavation that could damage the roots, so no special precautions are required. However, if large roots appear above the existing surface, then the precautions and procedures detailed above must be followed.

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AERIAL SURVEYING

SITE SURVEYING | SITE MONITORING | 3D MODELLING | ORTHOMOSAIC | DIGITAL SURFACE MAPPING

ARBORICULTURE

TREES & DEVELOPMENT| TREE RISK MANAGEMENT | TREES & THE LAW | EXPERT WITNESS

DIGITAL MAPPING & GRAPHIC DESIGN

DIGITAL REPRESENTATION AND GIS ANALYSIS | GRAPHIC DESIGN

ECOLOGY

HABITAT & SPECIES SURVEYS AND LICENSING | HABITAT CREATION, RESTORATION AND MANAGEMENT
STAKEHOLDER ENGAGEMENT | ECOLOGICAL IMPACT ASSESSMENT

FORESTRY & WOODLAND MANAGEMENT

FORESTRY MANAGEMENT ADVICE | OPERATIONAL MANAGEMENT | TIMBER SALES | GRANT APPLICATIONS
NEW WOODLAND DESIGN | CARBON | WOODLAND EVALUATION

LANDSCAPE & GREEN INFRASTRUCTURE

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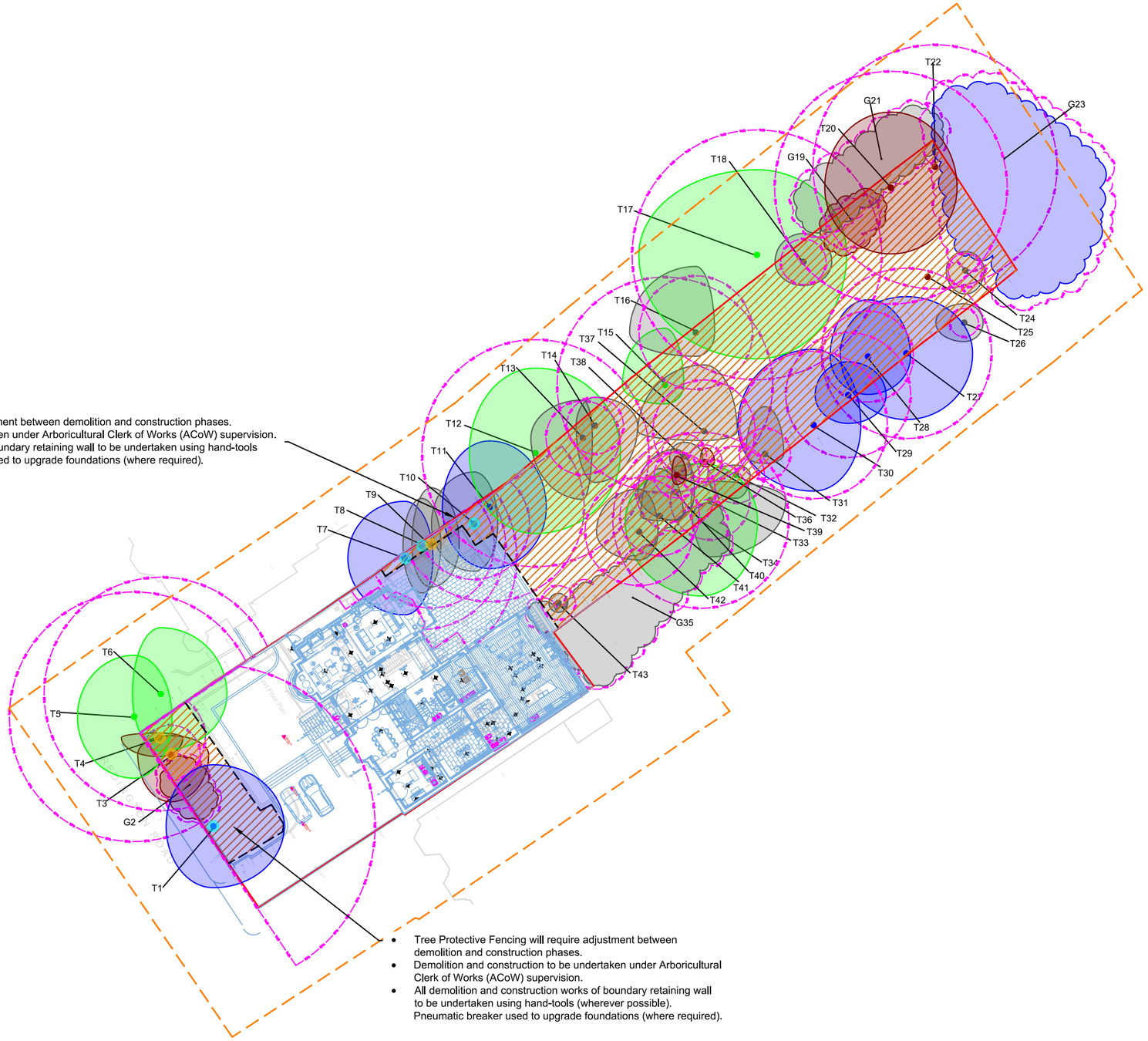
LANDSCAPE MANAGEMENT PLANS | GREEN INFRASTRUCTURE PLANNING & DESIGN | EXPERT WITNESS

MINERALS & WASTE RESTORATION

PLANNING RATIONALISATION & STAKEHOLDER LIAISON | LAND SURVEY & MANAGEMENT PLANNING
COST ENGINEERED LANDSCAPE & HABITAT DESIGN | IMPLEMENTATION MANAGEMENT & CLERK OF WORKS
RESTORATION & AFTERCARE MANAGEMENT PLAN (RAMP) | SOIL SURVEY & ADVICE

N

- Tree Protective Fencing will require adjustment between demolition and construction phases.
- Demolition and construction to be undertaken under Arboricultural Clerk of Works (ACoW) supervision.
- All demolition and construction works of boundary retaining wall to be undertaken using hand-tools (wherever possible). Pneumatic breaker used to upgrade foundations (where required).



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0m 10 20 30 40

Legend:

- Site Boundary
- Survey Extents
- Category A Trees (Stem and Canopy Spread)
- Category B Trees (Stem and Canopy Spread)
- Category C Trees (Stem and Canopy Spread)
- Category U Trees (Stem and Canopy Spread)
- Root Protection Area
- TPO Trees
- Trees for removal (Section 211 Notice)
- Construction Exclusion Zone (area required to protect retained trees roots and canopy)
- Tree Protection Fencing
- Existing Layout
- Proposed Layout

Notes:
- The following RPAs have been offset to account for existing built form or topography:T1, T3, T4, T5, T6, T7, T8, T9, T10 and T11.
- The following trees are subject to a TPO: T1, T7, T8 and T10
- The following trees are scheduled for removal under Section 211 notice (2020/1786/T): T3, T4 and T9.
- The majority of the rear garden consists of dense bramble, shrub and self-seeded saplings.

LOCKHART GARRATT

TITLE: Draft Tree Protection Plan

LAYOUT: N/A

PROJECT/SITE: 28 Redington Road, Hampstead

CLIENT: Mr M Wood

MAP REF: 4653/01/20-3476

REVISION: v2

DATE: 28/07/20

SCALE: 1:500@A3

APPROVED BY: AP

PRODUCED BY: SW

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