

Arboricultural Report:

Implications Assessment and Method Statement.

Site: 28 Coolhurst Road, London, N8 8EL.

Client: Mr Richard Thompson

Prepared by: James Cox (BSc. Hons, AA Tech Cert Arb)

11th April 2019

Ref: aiams1/28cool/110419

Contents

Executive Summary

1.0 Introduction

2.0 Site Visit and Tree Survey Methodology

3.0 Tree Appraisal

4.0 Arboricultural Impact Assessment

5.0 Preliminary Arboricultural Method Statement and Tree Protection

6.0 Site Supervision

7.0 General Site Care

Appendices

Appendix 1 Tree Survey Schedule & Table 1 of BS5837

Appendix 2 Tree Protection Plan (TPP1 28CR)

Appendix 3 Examples of Tree Protection Measures

Appendix 4 Example of Site Supervision Record

Appendix 5 Manual Digging in the Vicinity of Trees

Appendix 6 Section Drawing of Proposed Scheme

Executive Summary

A planning proposal to construct single storey extensions to the rear of adjoining properties at 28 Coolhurst Road, London is to be carried out within the vicinity of trees.

Southern Beeches Ltd has been commissioned to undertake a tree survey and provide an Arboricultural Impact Assessment and Method Statement following the guidelines set out in BS5837: 2012 'Trees in relation to design, demolition and construction Recommendations'.

Three trees are located within the adjoining sites, none of which are recommended for removal. Light pruning of the Pear (T5) may be necessary to maintain a comfortable separation from the scheme. Two further trees are located adjacent to the sites which do not require any pruning to accommodate the proposal. As a consequence, the scheme will have a negligible impact upon the visual character and appearance of the area.

This report assesses the impact of the proposed construction upon the tree(s) and their locality setting out protection measures that are to be adopted in order to successfully integrate the development project into its surroundings.

Subject to the implementation of the proposed scheme in accordance with the recommendations set out in this report, the landscape and important trees will not be adversely affected either directly by or resulting from the construction of the proposed scheme.

1.0 Introduction

- 1.1 This report has been commissioned by Mr Richard Thompson to; i) assess the trees in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction- Recommendations' (The BS); ii) detail the arboricultural consequences of the proposed project and assess its visual impact upon trees and amenity; iii) provide recommendations for effective tree protection, which are commensurate and appropriate for the scale and type of development; iv) develop a tree protection strategy for the duration of the construction including any land preparation or demolition works.
- 1.2 Reference to 'the proposed scheme' below will mean the scheme under consideration by the Local Planning Authority (LPA). The proposed development comprises construction of single storey extensions to the rear elevations of flats 1a and 1b, 28 Coolhurst Road, London. This includes associated landscaping of the rear gardens.
- 1.3 This report sets out the protection measures that will be adopted to ensure effective tree preservation. The basic principles are that; the established fenced and ground protected areas are exclusion zones for the duration of the construction (or as duly agreed) and; excavations within the BS root protection areas (RPA) will be subject to professional assessment.
- 1.4 Any operational practices recommended in this report are to be undertaken by the appropriate specialist company. Operatives are to carry out the relevant risk assessment and record such information, prior to commencement of tasks and work in accordance with current Health and Safety standards, practices and legislation. Unless formally agreed, no contractors are assessed, appointed or monitored by Southern Beeches Ltd. Responsibility and liability of all actions, non-actions, products and services associated directly with this report will be limited to the relevant client and contractor.

2.0 Site Visit and Tree Survey Methodology

2.1 The trees were inspected in accordance with the BS5837: 2012 Trees in relation to design, demolition and construction – Recommendations on 6th November 2018 and a total of 5 tree records are provided. The tree details are presented at **Appendix 1** in conjunction with the BS cascade chart outlining the tree categorisation methodology. The position of the trees is shown on the Tree Protection Plan (TPP1_28CR) at **Appendix 2**.

2.2 The site comprises portions of rear gardens belonging to adjoining lower ground floor flats within a residential area of north London. The site is bordered by other private residencies to the south and east and Crouch Hall Road to the north. A desk top study using the British Geological Survey (BGS) website 'Geology of Britain Viewer' has indicated that the bedrock in this area comprises "London Clay Formation". Soil with a high clay content can exhibit shrinkable characteristics and is likely to be poorly drained. A desk top study of Haringey



Council's online mapping system shows that tree no's 1, 2 and 3 identified in this survey are protected under statute law by Tree Preservation Orders (TPO) and the site is also within a Conservation Area (CA).

2.3 The trees were visually inspected from ground level from

within the site boundary using non-invasive methods only. The height, crown spread and crown clearance for each tree was estimated to the nearest metre.

The DBH (stem diameter at breast height) was measured to the nearest millimetre.

- 2.4 A full hazard assessment of the trees (including for example the assessment of decay or defects and its implications) has not been undertaken as this information is considered beyond the scope of this report. Naturally, any obvious hazards have been identified in the schedule and, I recommend that these are acted upon as soon as practicable.

3.0 Tree Appraisal

- 3.1 Tree No's 1 and 2 are mature Common Limes that have been maintained as 'pollards', the latter being a local authority street tree. T1 is the larger of the two trees and is located within the rear garden of Flat 1, 28 Coolhurst Road, adjacent to the north boundary at the top of a steep bank. It is a medium sized mature specimen of medium quality in terms of physiological and structural condition. In my opinion, it has an unremarkable appearance due to repeated pollarding of the canopy, providing only a low- medium contribution to the visual landscape in this area. I have categorised both of these trees as 'C' grade according the BS.
- 3.2 Tree No. 3 is a mature Horse Chestnut located off site beyond the eastern boundary. This tree was also once maintained as a 'pollard' but in recent decades has been allowed to develop a full canopy. As such it provides a high contribution to the visual landscape, being the dominant tree within the immediate vicinity. Although some minor cavities with decay are present within the primary limbs, it appears to be in normal structural and physiological condition for its age and species. Accordingly, I have assigned a 'B' grade to this tree.
- 3.3 A small Holly (T4) and Pear (T5) are located within the south-east corner of the rear garden belonging to flat 2. Whilst the Pear is a reasonable tree with some screening merits, the Holly is a poor one-sided specimen of little value. They are

both unremarkable in terms of landscape contribution and I have categorised both as 'C' grade trees.

- 3.4 The tree identified as being most relevant to this proposal is the Lime- T1 in terms of its proximity to the proposed scheme. Consideration will also be given to No's 2, 3, 4 and 5 in relation to protecting their canopies and RPA's during the various phases of construction. The BS details of the trees are provided within the tree survey schedule at **Appendix 1** and their corresponding positions are shown on the tree protection plan TPP1_28CR included at **Appendix 2**.



Fig 1. View of 'pollarded' Common Lime T1 looking west. Edge of decking denotes approximate location of proposed foundations.

4.0 Proposed Development and Arboricultural Impact Assessment

- 4.1 The proposed scheme involves construction of single storey extensions to the rear elevations of flats 1a and 1b, 28 Coolhurst Road, London. This includes associated landscaping of the rear gardens.

Tree Removal and Visual Impacts

- 4.2 Overall, the impact of the proposal upon the visual character and appearance of the landscape will be negligible as no trees have been identified for removal and of those that are to be retained only the Pear (T5) requires light canopy pruning to provide a comfortable separation from the proposal.

4.3 Retained Trees- Key Issues

a) Root Protection Area

- 4.3.1 The proposed area of construction will potentially affect the theoretical RPA's of tree No's 1, 2 and 3. In general terms, the BS RPA circles within this report should be viewed as general guidance only, as in reality, the hard surfacing surrounding this site together with significant level changes will have significantly influenced the extent and direction of any root growth. This is particularly pertinent to T2 which is located up upon street level. In my opinion this tree is too remote from the proposal and will not be significantly affected (above or below ground) by construction processes associated with this project.
- 4.3.2 The site is relatively small, therefore, working within the RPA of T1 and T3 is likely to be unavoidable. Furthermore, this means that tree protection fencing cannot be used to in a traditional way to create Construction Exclusion Zones (CEZ's). However, protective fencing will be erected around T2, T4 and T5 in the positions shown upon the TPP. Access to, and storage of building materials should be prevented within these zones.
- 4.3.3 Where access is required within the gardens for construction purposes (and therefore within the RPA's of T2 and T3), suitable ground protection will be installed to prevent compaction of the soil by footfall and light construction machinery. Details of suitable materials are described within **Appendix 3** below.
- 4.3.4 Using the theoretical RPA model, it appears that approximately 23% of the RPA belonging to T1 will be lost to construction. In reality I believe this will be much

less due to the likely effects of the steep slope and drop in elevation upon root distribution. In addition, there is an existing retaining wall at the bottom of the slope that follows the approximate line of the proposed foundations. It is probable that this structure has also helped to deflect root growth along its length.

- 4.3.5 Furthermore, the foundations are to be constructed using pile and beam methodology rather than traditional strip foundations. This should allow pile caps to be located between any significant roots that are discovered during initial hand dig excavations in the areas depicted upon the TPP.
- 4.3.6 It is also proposed to create non-invasive terracing on the slope adjacent to T2 using timber planks supported by steel pegs that can be located between tree roots. A section drawing of the proposed extension at **Appendix 6** illustrates the terracing and foundation design.

b) Future Risk and Tree Separation

- 4.3.5 The relationship between trees, their growth and living space is a common cause for conflicts, through excess shading, dropping of debris such as leaves and fruits and the mere size of trees can cause concern. In this scheme, subject to carrying out the recommended tree works below, the separation between trees and habitable dwellings is adequate and normal. On this basis, there seems no reason to expect undue or irresistible pressure to be placed upon retained trees in the future. However, it would be prudent to continue 'pollarding' the canopy of T1 otherwise it will develop a large canopy that will overhang the dwelling, creating shade and depositing sticky residue. The remaining trees will require no further or specific future management above what can be described as normal tree husbandry.
- 4.4 The implications of the proposed scheme and recommended tree works are summarised in the tables 1 and 2 below.

Table 1- Proposed/ Recommended Tree Works

Tree Works (Spec.)	Tree No's	Impact of Works on Visual Landscape *	Available Replacement Planting (Y/N)	Comments
Prune back west side of canopy by up to 2m (SP2)	5	Low	N/A	To provide a comfortable separation between tree and proposed scheme.
Root Investigation and suitable treatment (SP8)	1	None	N/A	Supervised manual excavations and suitable root treatment prior to installation of pile caps.

*This is a preliminary visual appraisal based upon the opinion of the author having inspected the trees in the context of their current surroundings. – None (no change or beneficial impact)
Negligible or indiscernible difference to treed landscape; Low – Noticeable but mitigated by retention of other landscape trees and features; Medium – Obvious but temporary alteration to the treed landscape; High – Obvious and permanent alteration to the landscape.

Visual receptors include the public or community at large, residents, visitors or other groups of viewers together with the visual amenity of potentially affected people.

Specifications for recommended tree works:

General

All work is to conform to BS 3998:2010 'Tree work – Recommendations' and with current arboricultural best practice. Tree works are to be undertaken by a professional and specialist arboricultural contractor, who carries the appropriate experience and insurance cover, equipment and PPE. All works and processes are to comply with all relevant Planning, Wildlife, Environmental, Conservation and Health and Safety legislation.

Sp2. Part reduction includes pruning back from structures or boundaries and which is normally applied to no more than two sides of a tree's canopy. The amount of pruning is specified in metres. The result form will be even and provide a framework for re-growth in an even form. The extent of pruning will not impinge upon tree condition and seek to preserve so far as possible, the natural outline of the tree, which is species determined. All pruning cuts are to be made to a suitable growing point (secondary shoot) and no inter-nodal cuts are to occur.

Sp8. Root pruning is to be carried out or supervised by a competent person (arboricultural contractor). Only sharp and specific pruning tools will be used for the root pruning exercise. No roots are to be pruned if it is considered that their loss (or shortening) will adversely impact upon tree condition or anchorage, immediately or in the future. Any exposed roots will be covered with a material to prevent desiccation. All exposed cut root surfaces will be made as small as possible. If possible roots will be pruned back to side shoot.

- 4.5 Commencement of all or some of the proposed works may be subject to written authorisation from the Local Planning Authority (LPA) should planning consent be obtained. We strongly advise that authorisation for any tree works is obtained from the LPA prior to commencement.

Table 2- Summary of Implications of Construction on Trees*

Tree Ident.	Landscape Contribution	Impact/Potential impact	Mitigation measures	Impact Assessment**
5	Low	Canopy damage during construction	1. Undertake supervised tree pruning prior to commencement.	Neutral
1, 3, 4, 5	Low- High	Soil compaction, root damage, root severance, loss of rooting area	1. Install BS- grade fencing and ground protection on preserved ground. 2. Retention of existing hard surfaces where possible. 3. Carry out initial supervised excavations and root treatment where appropriate prior to construction of foundations.	Neutral
1, 3	Medium- High	Soil compaction, root damage, root severance, loss of rooting area	1. Hard landscaping to be constructed carefully, avoiding root damage.	Neutral

* Main trees selected for comment included above. Refer to previous notes on other trees.

** Negative – adverse impact upon tree(s) and landscape; Neutral – no material impact (negative or positive); Positive – improvement (potential) to tree quality and landscape

5.0 Preliminary Arboricultural Method Statement and Tree Protection

- 5.1 A tree's BS root protection area (RPA) is based upon a radius measurement taken from the trunk centre and is included with reference to para. 4.6 of the BS (See **Appendix 1**). Professional arboricultural judgement may identify modifications to the morphology of an RPA. Any work within a tree's RPA will be subject to professional advice and the guidance set out in this report, particularly where construction is required within this area but beyond the position of fixed tree protection fencing.
- 5.2 Effective tree protection will be afforded subject to following a logical sequence of events, which will follow a pre-commencement site meeting of relevant parties. The Tree Protection Fencing will then be erected in accordance with the Tree Protection Plan (TPP1_28CR at **Appendix 2**) prior to the commencement of any site works, i.e before any materials or machinery is brought on site. The type of fencing and its recommended specification is attached at **Appendix 3**.
- 5.3 Construction Exclusion Zone (CEZ): The CEZ's are to be afforded protection at all times and will be protected by robust fencing and/or ground protection as detailed in conjunction with all weather warning notices affixed to every third panel or at 12m centres. After installation of the protective fencing the CEZ must be considered sacrosanct and off limits for any access or construction activity without the formal consent of the LPA or otherwise detailed on the TPP. No materials are to be stored within the CEZ.
- 5.4 The protective fencing may only be removed following completion of all construction works or with the formal agreement of the LPA. Any alterations to its position or construction during development must also be approved by the Arboriculturist and subsequently agreed by the LPA.



Fig.1 Example of site signage (Tree protection)

- 5.5 Following erection of the tree protection fencing/barriers and following the completion of the tree works, I recommend installing the ground protection (refer to the TPP) to ensure that roots under or at the surface are not damaged by compaction during regular passing by operatives and light machinery. I have included the recommended examples of ground protection at **Appendix 3** also.
- 5.6 The methods of manual digging near trees is described with **Appendix 5** but for clarity I have set out the procedure below, which is to be overseen by the appointed arboricultural consultant:
- Clearly mark out the area for hand dig (using biodegradable marker paint) (see TPP)
 - Use hand tools (forks and spades) to remove the spoil and deposit beyond RPA.
 - Identify roots to be retained by brushing or the use of compressed air
 - Unless after professional assessment permits pruning, roots in excess of 25mm Ø are to be retained in-situ by manually clearing around (with compressed air for example), wrapping with non-woven geotextile (e.g. Terram), covering with a void former e.g. split, rigid polythene piping.
 - Unless after professional assessment permits pruning, retention of roots 50mm Ø or more will be by the use of void-formers (see **Appendix 5**).

- Roots <25mm Ø will be pruned using sharp pruning tools ensuring that no splits or tears occur and that the pruning wound is made as small as possible. Roots will be pruned back to a side shoot where possible or to a suitable position.

5.7 Alterations or replacement of the hard/ soft landscaping within the RPA of tree no's 1, 3, 4 and 5 should avoid excavation into the soil horizon (or carefully investigate for shallow roots before doing so) and incorporate permeable, low invasive surfacing materials.

6.0 Site Supervision - Arboricultural Specialist

6.1 In order to ensure that the tree protection measures are implemented effectively, a site monitoring exercise will be undertaken. Key times for supervision include:

Erection of tree protection fencing

Installation of ground protection

Construction works within RPAs of retained trees

An example of a site monitoring record is provided at **Appendix 4**. In this case, the form will be used as confirmation that all practical precautions have been undertaken in accordance with this method statement.

6.2 The details pertaining to tree protection as set out in this method statement are to be explained to the Site Agent at the pre-commencement site meeting. It will be the responsibility of the Site Agent to ensure that all personnel working on site are aware to the tree protection measures processes. A copy of this method statement is to be retained on site for the duration of the build process together with a scaled, colour copy of the Tree Protection Plan.

6.3 The process for recording the tree protection measures will involve:

- i) Site Agent (SA) to contact Arboricultural Supervisor (AS) with a minimum of 5 days' notice of any site work commencement.
- ii) Arboricultural Supervisor to monitor site to agree tree protection fencing

- iii) When all tree protection is installed in accordance with the tree protection plan, the Arboricultural Supervisor is to arrange with LPA tree officer and relevant contractors **the pre-commencement site meeting** in order to agree the tree protection and subsequent works within RPAs of retained trees and importantly the lines of communication between the on-site contractors, the Arboricultural Supervisor and the LPA tree officer and incident reporting,
 - iv) Arboricultural Supervisor to record all site visits and distribute reports to LPA tree officer and contractors for their records
 - v) Subsequent to completion, Arboricultural Supervisor to sign-off and complete.
 - vi) Any incidents resulting in potential tree damage are to be reported to the Arboricultural Supervisor.
- 6.4 The frequency of tree protection monitoring depends upon the nature of the project. In this case, it will be appropriate for the SA to organise with the AS monitoring visits to be once in the initial 28 days from commencement and thereafter by agreement.
- 7.0 General Site Care**
- 7.1 No fires will be lit on site.
 - 7.2 No access will be permitted to within the fenced or otherwise protected areas (unless for site accommodation or Authorised agreement) at any stage during construction.
 - 7.3 No materials, equipment or debris will be stored within the fenced areas unless agreed with the arboricultural supervisor.
 - 7.4 Areas for mixing are to be located beyond RPAs of trees and contained to prevent leaching into the soil.
 - 7.5 A copy of this report and the Tree Protection Plan is to remain on site at all times.

Note 1. RPA to be assessed by an arboriculturist. BS 5837:2012 'Trees in Relation to Construction - Recommendations' paras. 4.6.1-3.

Re-building of existing structures located within the protection distances, such as retaining walls, may require soil excavation and root treatment.

Note 2. The Circular 02/2005 gives guidance on the temporary stop notice provisions in Part 4 of the Planning and Compulsory Purchase Act 2004, which inserted sections 171E to 171H to the Town and Country Planning Act 1990.



James Cox

11th April 2019

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Please note that all relevant planning approvals and approval to planning conditions must first have been issued by the relevant planning authority in order for this report to become effective. We strongly advise that you consult your planning advisors before implementing any recommendations set out in this report.

Appendix 1

Site: Flat 1a, 28 Coolhurst Road, London, N8 8EL

Date: 6th November 2018

Surveyor: J. Cox

Ref:ts1/28cr

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	Lime, Common	13	2 2 2	5/N5	Mature	670	12	8.0	Normal	Good	Medium	C	1,2	10-20	Pollard Inspection limited by ivy/access Roots affected by structures
T2	Lime, Common	8	1 2 2	4/N4	Mature	390	12	4.7	Normal	Good	Medium	C	1,2	10-20	Pollard Off-site tree No significant defects
T3	Chestnut, Horse	17	6 9 8	2/N7	Mature	800e	12	9.6	Normal	Good	High	B	1,2	20-40	Off-site tree Cavities with decay(minor) Old Pollard; drawn end heavy limbs
T4	Holly, Common	6	1 2 2	2/N2	Middle Aged	90	12	1.1	Moderate	Fair	Low	C	1,2	10-20	Unprofessionally topped/lopped Suppressed by nearby tree(s)
T5	Pear, Common	6	2 6 4	2/N2	Mature	230	12	2.8	Normal	Good	Low	C	1,2	10-20	One-sided form/suppressed Boundary screen tree

Notes:

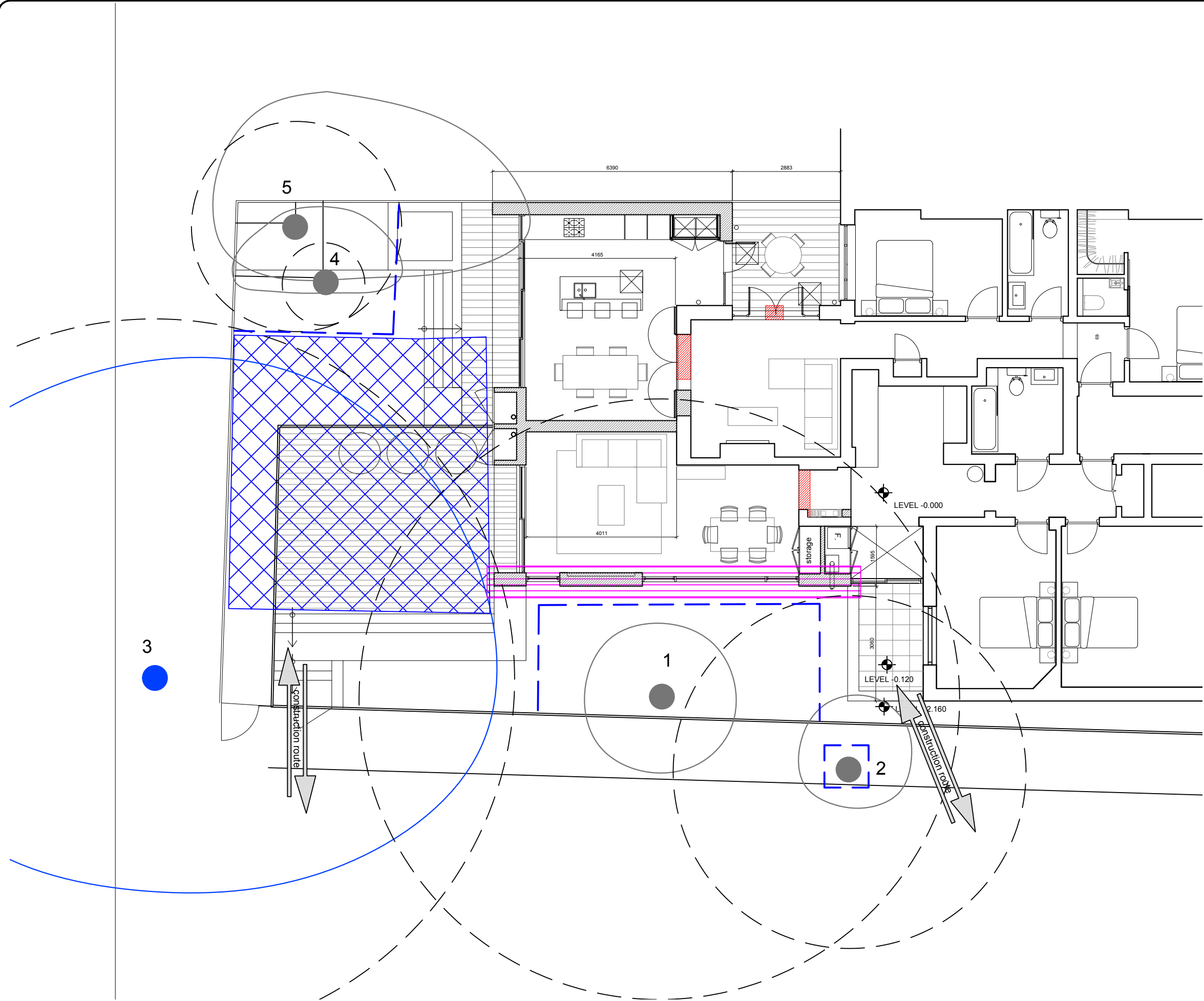
- Height describes the approximate height of the tree in meters from ground level.
- The Crown Spread refers to the crown radius in meters from the stem centre and is shown above on each of the four compass points (i.e. N, E, S, W) clockwise.
- Ground Clearance is the height in meters of crown clearance above adjacent ground level together with the height and direction of the lowest branch
- Stem Diameter is the diameter of the stem measured in millimetres at 1.5m from ground level. The diameter may be estimated (e), where access is restricted. An average (a) may be taken for tree groups. A full inspection is always recommended.
- Protection Multiplier is 12 for single-stemmed trees; for multi-stemmed a cross-sectional area is calculated to derive the DBH, which in turn is multiplied by 12.

- Protection Radius is a radial distance measured from the trunk centre and is used to calculate the BS RPA.
- Growth Vitality - Normal growth, Moderate (below normal), Poor (sparse/weak), Dead (dead or dying tree).
- Structural Condition - Good (no or only minor defects), Fair (remediable defects), Poor - Major defects present or suspected.
- Landscape Contribution - High (prominent landscape feature), Medium (visible in landscape), Low (secluded/among other trees).
- B.S. Cat. refers to British Standard 5837:2012 Table 1 category and refers to tree/group quality and value; 'A' - High, 'B' - Moderate, 'C' - Low, 'U' - Remove or very poor quality.
- Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is Landscape and 3 is Cultural including Conservation/ecological, historic and commemorative.
- Useful Life is the tree's estimated remaining effective contribution in years.

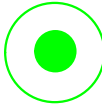
Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those 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	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

Appendix 2



LEGEND



A grade trees



C grade trees



B grade trees



U grade trees



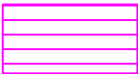
BS Root Protection Area, (RPA) shown uniform (above left) but site features such as roadways, retaining walls and foundations, may modify root patterns and therefore the RPA shape.



Recommended position for fixed tree protection fencing; denotes construction exclusion zone.



Area for effective ground protection, provided by existing paving slabs or material suitable for the project



Area identified for hand excavations prior to construction of pile and beam foundations. Pile caps to be located between any significant roots discovered. All work to be supervised by an arborist to advise upon root treatment where necessary.

Tree Protection Methods to be adopted on site.

1. Undertake pre-commencement site meeting to agree tree protection methods and timings.
2. Carry out any permitted tree works.
3. Erect and fix in place all tree/ ground protection (see Appendix 3).
4. Carry out supervised hand dig root investigations prior to locating pile caps.
5. Complete ground works and construction.
6. Remove tree protection.
7. Carry out landscaping phase.

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Project : Flats 1 and 2, 28 Coolhurst Road, London, N8 8EL

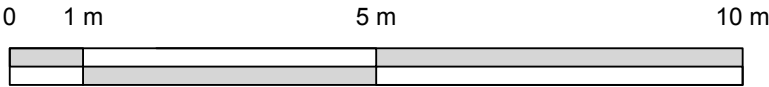
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Date : Apr. 2019

Dwg No : TPP1_28CR

Rev : -

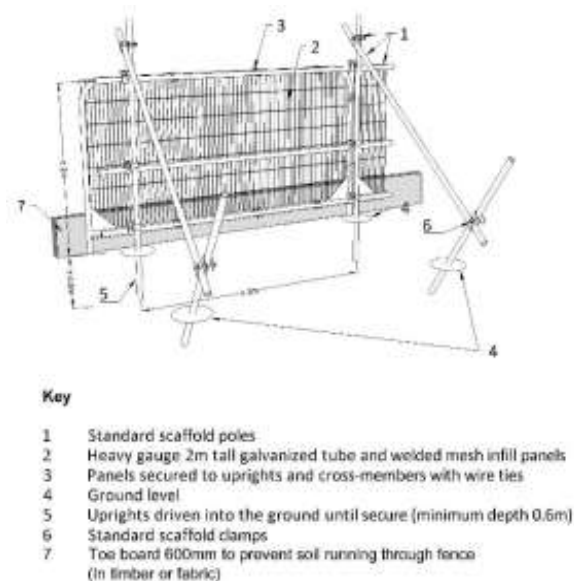


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Appendix 3

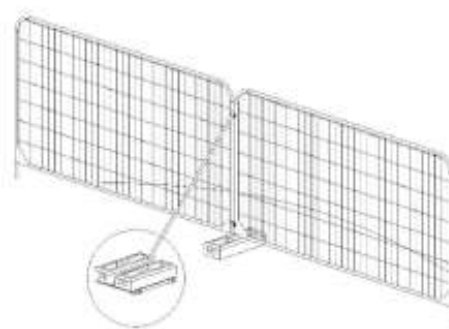
Tree Protection Measures

Default Tree Protective Fence (TPF) – Type1:



Default TPF – Type2b:

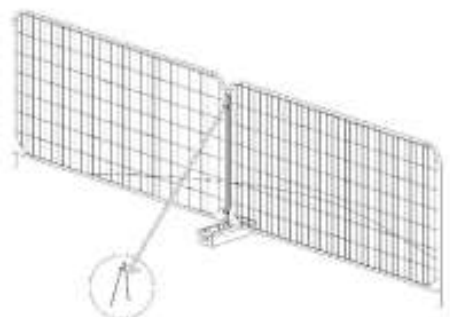
Examples of above-ground stabilizing systems



b) Stabilizer strut mounted on block tray

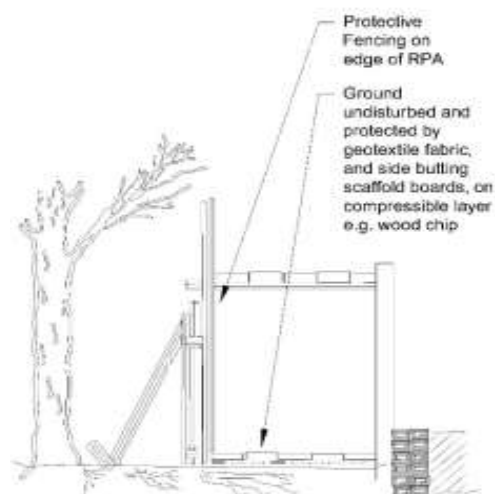
Default TPF – Type2a:

Examples of above-ground stabilizing systems

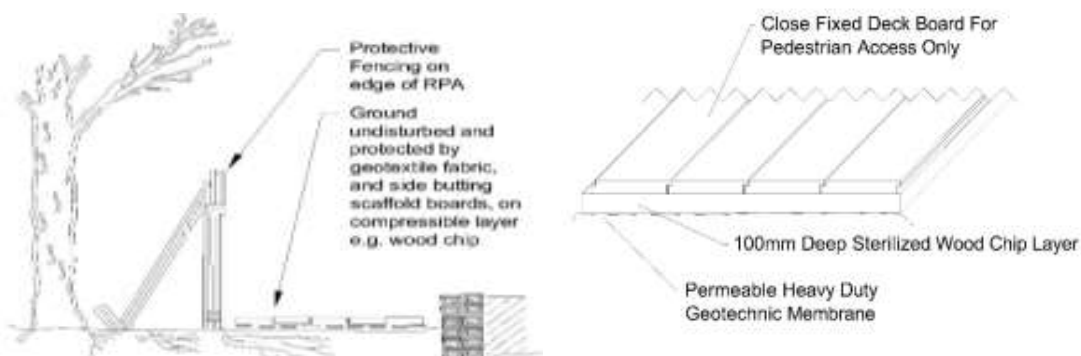


a) Stabilizer strut with base plate secured with ground pins

TPF + Scaffolding in RPA:



TPF + Ground Protection in RPA:



Appendix 4

Site Monitoring Record

Site Address:		Client:		Inspector:		Site Agent:	
Date	Activity	Comments	Actions	By whom	Signed (on behalf of Southern Beeches)	Signed (on behalf of client)	
	Protective Fencing						
	Construction Exclusion Zone						
	Ground Protection						
	Remedial Works						

Notes:

Appendix 5

Manual Excavation In the Vicinity of Trees

1.0 Introduction

1.1 Within and adjacent to areas of construction, trees valued as important landscape assets may exist. It is possible such trees are protected by legislation in the form of a Tree Preservation Order, conservation area or by planning conditions. In either case, disregard of the tree's well-being by causing damage to the roots, trunk or branches may be an offence. Consent from the Local Planning Authority may be required to undertake works that may have an impact on the tree prior to commencement.

1.2 Whilst the trunk and branches of a tree can be seen and therefore more easily avoided, tree roots are concealed beneath the ground. Their hidden nature can lead to inadvertent damage from construction processes. Dependent upon the extent of any root damage, the whole tree can be adversely affected. It is for this reason that it is necessary to ensure adequate precautions are adopted when considering construction in the vicinity of trees.

1.3 Hand digging rather than excavation by mechanical means has proved to be an effective way of limiting the effects of construction on nearby trees. It is often considered impractical, time consuming and costly to excavate by hand when machinery exists specifically for the purpose of digging. However, avoidance of unsustainable damage being caused to important trees through hand digging may far outweigh subsequent costs associated with legal penalties and loss of amenity.

1.4 Below are detailed the basic principles to acknowledge in respect of tree roots and the practical steps that can be taken to effectively avoid causing unsustainable damage to trees.

1.5 It is assumed that all operations are commenced only AFTER having undertaken and recorded appropriate risk assessments in line with current and relevant Health & Safety legislation, common industry practice and guidance.

2.0 Tree/Root Damage – How it can occur

2.1 The majority of tree roots exist in the upper 600mm to 1000mm of soil. Excavations of the soil in the vicinity of trees, to this depth, can be harmful to tree roots and consequently the tree.

2.2.1 Tree root systems comprise two main root types, those that anchor the tree in the ground and those that supply the tree with water and elements. Roots that support the tree are woody and those that are involved with the conduction of water and nutrients are non-woody or fibrous. Both types of roots can be damaged directly by severing or crushing. Fibrous roots can die from asphyxiation by soil compaction and/or soil contamination. Trees differ in their tolerance of root loss or disturbance, according to their species and condition or both.

2.3 The larger the root damaged, the greater the impact on the tree.

3.0 Hand Digging in the Vicinity of Trees – The Process

3.1 First it is necessary to consider all available options to construct beyond the likely range of influence on the tree's condition – normally beyond 1m from the tree's trunk and within an area below the tree's canopy or by referring to an area calculated using the formulae at para 4.6.1 of BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'. This area is called the Precautionary Zone or Root Protection Area. When it is established that no options are available other than to construct within this zone, hand digging will be needed. When considering hand digging, an appointed specialist supervisor/consultant will be able to advise during construction and must be on site at the commencement of works.

3.2 Before beginning to dig, mark out the tree's precautionary area with ground marker paint, clearly on the ground. This will identify the area within which hand digging must take place. For safety and before beginning to dig, ensure there are no underground services or objects that may cause injury if damaged. Any existing protection fencing is to be located to the nearest position of construction and fixed in place, between the tree and area of construction. It will be clearly visible to operators thereafter where hand digging will need to be undertaken. The use of mechanical digging equipment to remove the top surface layer (50-100mm) is to be avoided and hand tools are required for this exercise too.

3.3 When hand digging, using typical hand tools, carefully work around roots, retaining as many as possible. Using a brush or compressed air will expose roots cleanly before deciding whether it will be necessary to prune. Care must be taken not to damage roots including the roots' bark.

3.4 Retain all roots with a diameter greater than 25mm. Where such roots must be removed, after consulting a trained arboriculturalist (e.g. Local Authority Tree Officer or the appointed Arboricultural Consultant), these roots must be pruned with sharp cutting tools such as a handsaw, secateurs or pruners. The cut must leave the smallest wound possible and the root must be left as long as practicably possible. Roots in excess of 50mm diameter are to be retained and protected by surrounding the root with un-compacted sharp sand, void-formers or other compressible materials.

3.5 Where roots do not exist, e.g. beyond the depth of the rooting area, mechanical excavation should not be considered without specialist supervision.

3.6 All spoil is to be deposited beyond the precautionary zone. Soil build-up can cause roots to die.

3.7 As soon as practicable, exposed roots are to be covered with loose backfill material such as soil/sand mix or a hessian-type material to offer immediate protection from drying winds and desiccation. When excavating for the introduction of posts, pads or piles, the sides of the pits should be lined with a geotextile material to prevent the potential for lime scorching of small diameter roots.

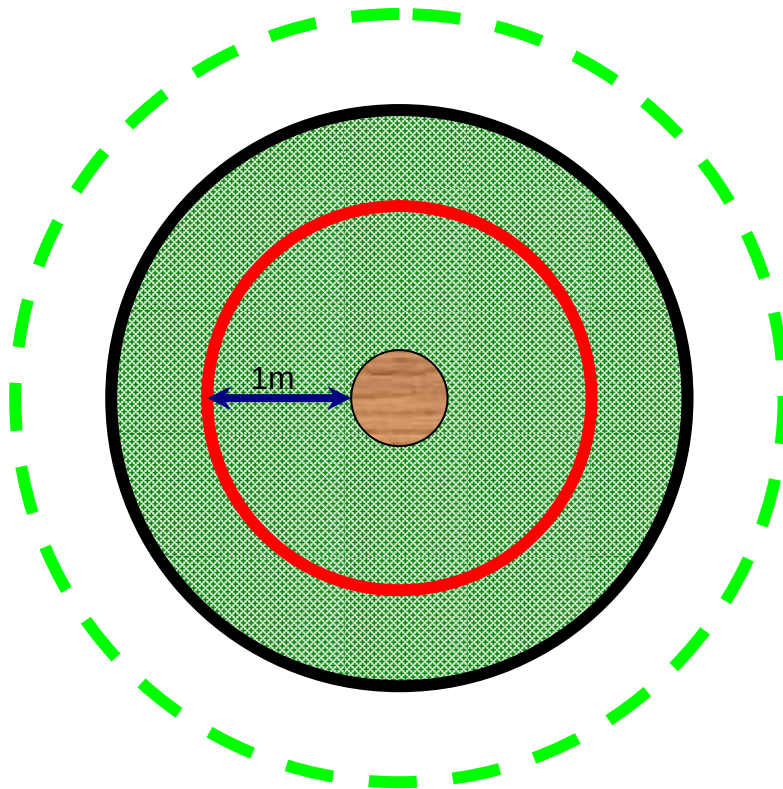
3.8 Where it is impossible to avoid completing the construction in one day for example, any exposed roots or their cut ends are to be covered with sacking material over night to prevent

drying out and to add protection. This is particularly important in winter months, where frost can cause further damage to roots.

3.9 Upon completion of the hand digging, where appropriate protection fences are to be re-located and fixed in their original position.

Attached is an extract from the National Joint Utilities Group publication V4 2007, 'Guidelines for the planning installation and maintenance of utility services in proximity to trees'.

Before considering hand digging and determining precautionary zones or root protection areas, specialist arboricultural advice should be sought.

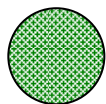


TREE PROTECTION ZONE

Key to Diagram



Trunk of Tree



Spread of canopy or branches



PROHIBITED ZONE – 1m from trunk. Excavations of any kind must not be undertaken within this zone unless full consultation with Local Authority Tree Officer is undertaken. Materials, plant and spoil must not be stored within this zone.



PRECAUTIONARY ZONE – beneath canopy or branch spread. Where excavations must be undertaken within this zone the use of mechanical excavation plant should be prohibited. Precautions should be undertaken to protect any exposed roots. Materials, plant and spoil should not be stored within this zone. Consult with Local Authority Tree Officer if in any doubt.



PERMITTED ZONE – outside of precautionary zone. Excavation works may be undertaken within this zone however caution must be applied and the use of mechanical plant limited. Any exposed roots should be protected.

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees – Issue 1

DAMAGE TO TREES

Tree roots keep a tree healthy and upright. Most roots are found in the top 600mm of soil and often grow out further than the tree's height. The majority of these roots are very fine; even close to a tree few will be thicker than a pencil. Most street tree roots grow under the footway but may also extend under the carriageway. If roots are damaged the tree may suffer irreversible harm and eventually die.

PROTECTING ROOTS - DO'S and DON'TS

There are three designated zones around a tree each of which has its own criteria for working practices.

THE PROHIBITED ZONE

Don't excavate within this zone.

Don't use any form of mechanical plant within this zone

Don't store materials, plant or equipment within this zone.

Don't move plant or vehicles within this zone.

Don't lean materials against, or chain plant to, the trunk.

Do contact the local authority tree officer or owner of the tree if excavation within this zone is unavoidable.

Do protect any exposed roots uncovered within this zone with dry sacking.

Do backfill with a suitable inert granular and top soil material mix as soon as possible on completion of works.

Do notify the local authority tree officer or the tree's owner of any damage.

THE PRECAUTIONARY ZONE

Don't excavate with machinery. Where excavation is unavoidable within this zone excavate only by hand or use trenchless techniques.

Don't cut roots over 25mm in diameter, unless advice has been sought from the local authority tree officer.

Don't repeatedly move / use heavy mechanical plant except on hard standing.

Don't store spoil or building material, including chemicals and fuels, within this zone.

Do prune roots which have to be removed using a sharp tool (e.g. secateurs or handsaw). Make a clean cut and leave as small a wound as possible.

Do backfill the trench with an inert granular material and top soil mix. Compact the backfill with care around the retained roots. On non highway sites backfill only with excavated soil.

Do protect any exposed roots with dry sacking ensuring this is removed before backfilling.

Do notify the local authority tree officer or the tree's owner of any damage.

THE PERMITTED ZONE

Don't cut roots over 25mm in diameter, unless advice has been sought from the local authority tree officer.

Do use caution if it is absolutely necessary to operate mechanical plant within this zone.

Do prune roots which have to be removed using a sharp tool (e.g. secateurs or handsaw). Make a clean cut and leave as small a wound as possible.

Do protect any exposed roots with dry sacking ensuring this is removed before backfilling.

Do notify the local authority tree officer or the tree's owner of any damage.

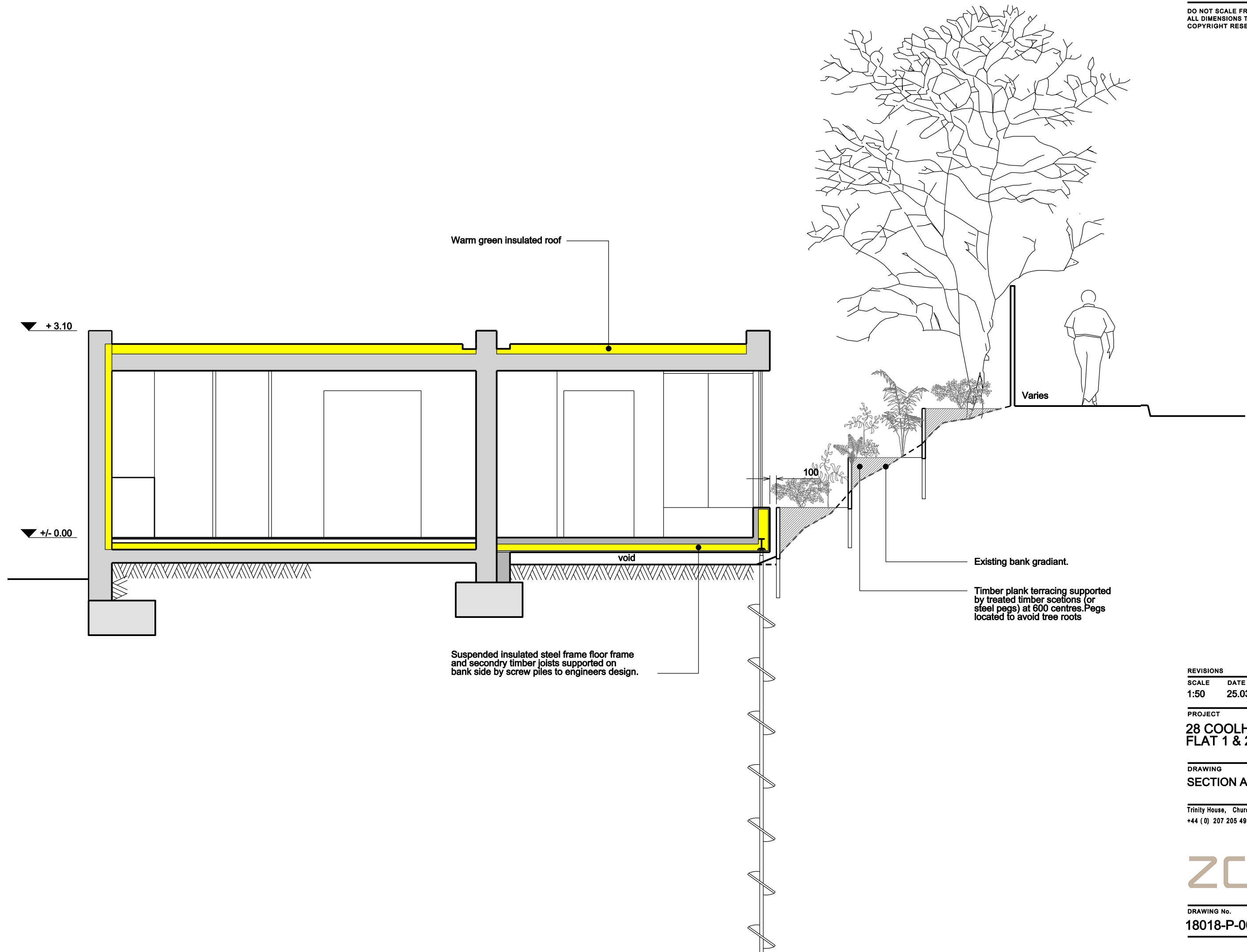
NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees

TABLE 1 - Prevention of Damage to Trees Below Ground

Causes of Damage	Type of Damage	Implications to Tree	Precautions
Trenching, mechanical digging etc.	Root severance	- The tree may fall over - Death of the root beyond the point of damage - Potential risk of infection of the tree The larger the root the greater the impact on the tree.	Hand excavate only within the Precautionary Zone. Work carefully around roots. Do not cut roots over 25mm in diameter without referring to the local authority tree officer. For roots less than 25mm in diameter use a sharp tool and make a clean cut leaving as small a wound as possible.
Trenching, mechanical digging, top soil surface removal etc.	Root bark damage	- The tree may fall over - If the damage circles the root it will cause the death of the root beyond that point - Potential risk of infection of the tree The larger the root the greater the impact on the tree.	Do not use mechanical machinery to strip the top soil within the Precautionary Zone. Hand excavate only within the Precautionary Zone. Work carefully around roots. Do not cut roots over 25mm in diameter without referring to the local authority tree officer. For roots less than 25mm use a sharp tool and make a clean cut leaving as small a wound as possible.
Vehicle movement and plant use. Material storage within the precautionary area.	Soil compaction & water saturation	Restricts or prevents passage of gaseous diffusion through soil, the roots are asphyxiated and killed affecting the whole tree.	Prevent all vehicle movement, plant use or material storage within the Precautionary Zone.
Top-soil scouring, excavation or banking up.	Alterations in soil level causing compaction or exposure of roots.	Lowering levels strips out the mass of roots over a wide area. Raising soil levels asphyxiates roots and has the same effect as soil compaction.	Avoid altering or disturbing soil levels within the Precautionary Zone.
Use of herbicides.	Poisoning of the tree via root absorption	- Death of the whole tree - Death of individual branches Damage to leaves and shoots.	The selection and application of herbicides must be undertaken by a competent person in accordance with COSHH regulations.
Spillage of oils or other materials.	Contamination of soil	Toxic and asphyxiation effects of chemicals, oils, building materials (cement, plaster, additives etc.) on the root system can kill the tree.	Never store oils, chemicals or building materials within the Precautionary Zone or within the branch spread of a tree, which ever is the greater.
Placement or replacement of underground apparatus.	Various	Death of all or part of the tree.	Effective planning and liaison with local authority tree officer, taking into consideration the position of trees, and their future growth potential and management

Appendix 6

DO NOT SCALE FROM THIS DRAWING.
ALL DIMENSIONS TO BE CHECKED ON SITE.
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REVISIONS			
SCALE	DATE	DRAWN	CHECKED
1:50	25.03.19	LZ	

PROJECT
28 COOLHURST RD
FLAT 1 & 2

DRAWING
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