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Tree Survey and Arboricultural Impact Assessment

BS5837:2012 Format

A report and Arboricultural Method Statement to support the demolition of existing and construction of six new properties.

Site Address:

Manor Lodge, Rickmansworth Rd, Northwood HA6 2QW

Produced For:	Merchant Land Investments Ltd
Produced By:	Robert Rainford Bsc. (Hons.) MArborA
Survey Date	11/12/2022
Report Date	27/03/2025
Reference:	RA.BS5837.016.2

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1. Introduction

1.1 Instruction

Rainfords Tree Care have been instructed by the Merchant Land Ltd, to undertake a survey to BS5837 standard to the site at Rickmansworth Rd, Northwood HA6 2QW and to provide advice and recommendations to facilitate a development of six housing units, with associated driveway and hard surfaces.

The site was surveyed on 11th of December 2022, the weather was cold and misty.

This updated report takes into account changes made to the site access, with the remaining scheme largely unchanged in principle.

1.2 Purpose of the Report

This report provides an analysis of the impact of any proposed development and local amenity regarding the trees and to provide realistic management measures appropriate for the site. This report can be used to support a planning application for tree works and accompany planning applications for construction. During the planning process this document will be publicly available, therefore the aim is to provide the information in a clear, concise, and understandable manner for the layman.

1.3 1.3 Author Profile

Robert Rainford has been active in the Arboricultural field since 2011, specializing in tree surveys and inspections. He completed his Bachelor's degree (BSc) with Honours in Arboriculture from Myerscough College in 2012. Initially, Robert gained practical experience in the industry for several years before transitioning to focus on tree surveys and inspections in 2015 while still maintaining his hands-on work. Throughout his career, he has served both as a self-employed professional and has also worked for prominent landowners, including Local Authorities.

Robert has been entrusted with tree management and assessments for various tree populations since achieving his Level 6 qualification. In addition, he has acquired several certifications and competencies, such as practical NPTC tickets for industry-specific tasks. Moreover, Robert has undergone training in Lantra Professional Tree Inspection and Subsidence awareness and investigation, which have enhanced his skills in report writing.

1.4 Provided Documents

Topographical surveys have been provided, along with full building proposals and site layouts.

1.5 Tree Data Collection

All the trees on site have been numbered and species identified, as necessary. Each tree has been inspected and analysed in accordance with the requirements of BS5837. This includes information on height, diameter at breast height (DBH), crown spread to 4 cardinal points, maturity, condition, and recommendations. Each tree has been classified as category A, B, C or U. This classification is described below, with further information on classification in the appendices.

Category	Description
A – High	Good specimen trees, with long life expectancy, high amenity value.
B – Moderate	Specimens that will add to the area in time or are not an ideal specimen. Medium Amenity
C - Low	Trees that have poor crown structure/form i.e., suppressed. Low Amenity Value
U or R	Tree diseased or dying, unsuitable for location. Fell.

1.6 Interpretation of Tree Data

Within section 5 of BS5837, the DBH is used to determine the size of the Root Protection Area (RPA). This area can be interpreted to observe any design constraints on site, to allow architects and planners to ensure trees being retained a part of a development are adequately protected.

Included in this report are some supporting documents and plans:

- Tree Constraints Plan, this identifies all the trees on site.
- Tree Retention Plan, this identifies trees to be retained and trees to be removed.
- Tree Protection Plan, this identifies the calculated RPA for trees being retained.

2 Site Context

2.1 Site Overview

This site is set In Northwood, within the London Borough of Hillingdon. It comprises of a relatively level space raised up from the adjacent Rickmansworth Road. The property, Manor Lodge, is an old and unused dwelling previously part of the school located behind the property.

FIGURE 1: SITE IN CONTEXT, FROM GOOGLE MAPS

2.2 Treescape

The treescape at this site comprises of predominantly coniferous species, Lawson Cypress (*Chamaecyparis spp.)* and Yew (*Taxus baccata*). There are Beech (*Fagus sylvatica*), and Plum (*Prunus domestica*) also on site. Adjacent sites have mixed native species with the residential property to the south east having a Mature Monterey Cypress (*Cupressus macrocarpa*) and Laurel (*Prunus laurocerasus*) Hedge.

The adjacent property to the northwest has some trees along the boundary, growing adjacent to the current wall. Comprising of Pear trees, these trees present a moderate to significant overhang into Manor Lodge.

2.3 Surrounding Area

The surrounding area is comprised of different property construction and uses, including Northwood Golf Club across from Manor Lodge, Northwood College to the Northeast and remaining areas predominantly residential.

2.4 Geological Details

LandIS describes the site as *"Soilscape 18: Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils"*

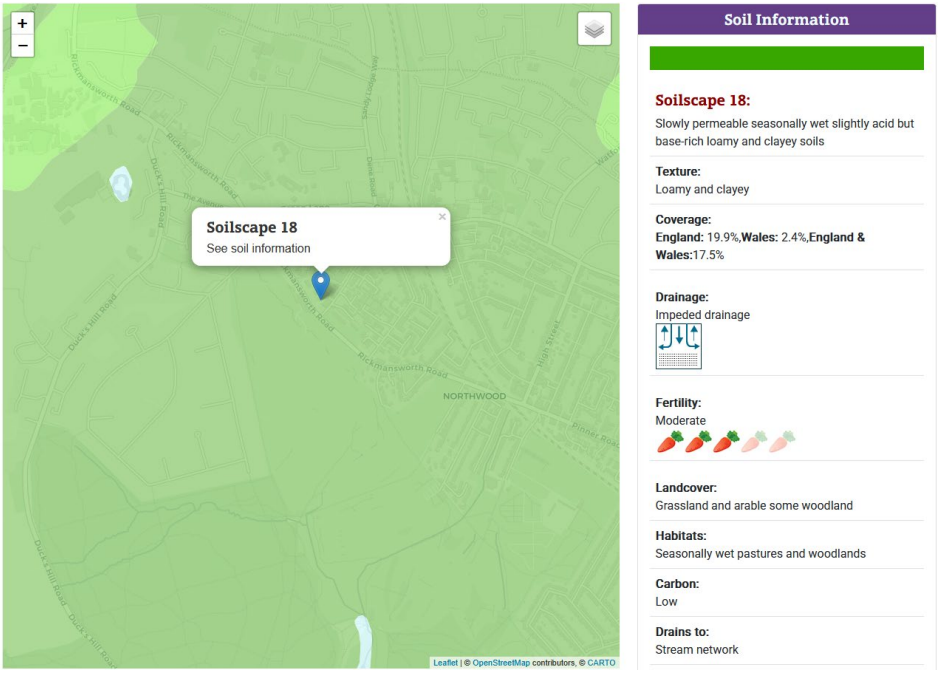


FIGURE 2: LANDIS SOILSCAPES VIEWER FOR SITE

Bedrock formation here is described by the British Geological Survey as: *"Lambeth Group - Clay, silt and sand. Sedimentary bedrock formed between 59.2 and 47.8 million years ago during the Palaeogene period."*

No superficial deposits are noted at this site.

FIGURE 3: BGS VIEWER FOR BEDROCK/SUPERFICIAL DEPOSITS

3 Statutory Controls

In the presence of any TPO or CA constraints, written permission must be granted before any tree work is carried out.

3.1 Tree Preservation Orders

An enquiry was made on Hillingdon Borough Council's website on 17/01/2023 to ascertain the presence of TPOs at this site, no TPOs were noted as present at this site.

3.2 Conservation Areas

An enquiry was made on Hillingdon Borough Council's website on 17/01/2023 to ascertain the presence of Conservation Areas at this site, this site does not appear to be within a conservation area, however the Northwood Town Centre, Green Lane Conservation Area is close by to the North of this site.

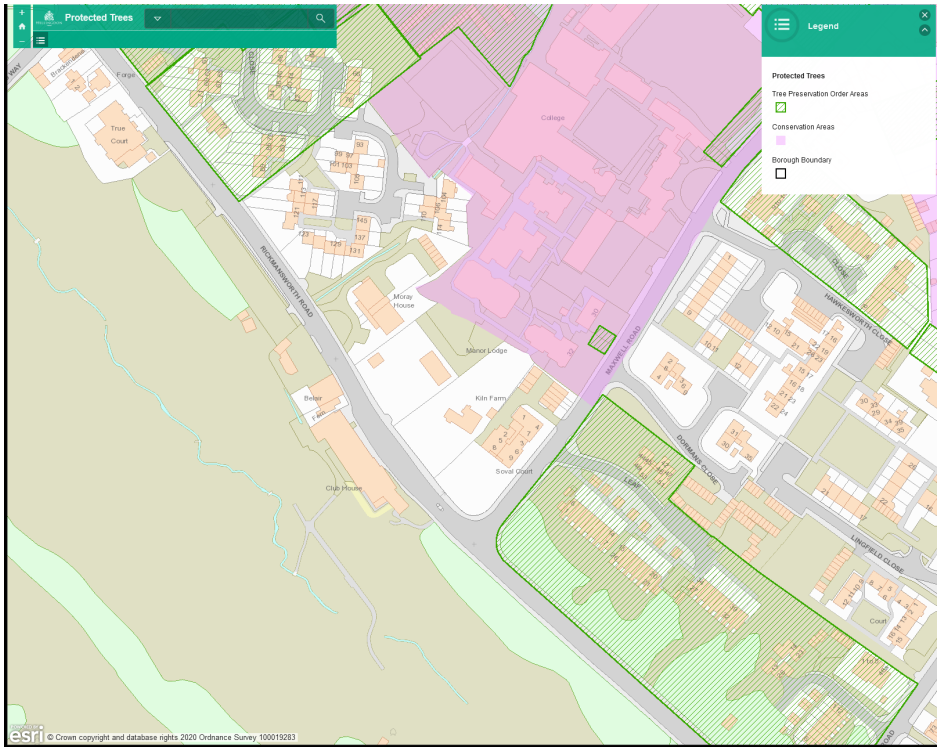


FIGURE 4: SCREENSHOT OF HILLINGDON BOROUGH COUNCIL ONLINE TPO/CA MAP SYSTEM.

3.3 Felling Licence

Large scale tree felling is restricted under the Forestry Act 1967. Under this act, there is an exemption from the need for a felling licence if planning permission is in place,

"Felling trees immediately required for the purpose of carrying out development authorised by planning permission (granted under the Town and Country Planning Act 1990)"

The trees on this development would be exempt from protection under the Forestry Act 1967 if full planning permission is obtained.

4 Planning Policies

4.1 Planning Policy Context: Relevance of Trees in the NPPF (December 2024)

The National Planning Policy Framework (NPPF, December 2024) places clear emphasis on the value of trees within the planning process. The following key references highlight where trees are considered material to planning policy and decision-making and are therefore relevant to this report:

- **Paragraph 180** – Planning policies and decisions should contribute to and enhance the natural and local environment by:
    - Recognising the intrinsic character and beauty of the countryside;
    - Acknowledging the wider benefits from natural capital and ecosystem services, including the economic and other benefits of trees and woodland.
- **Paragraph 186** – Emphasises the need to conserve, restore, and enhance priority habitats and ecological networks. This includes ancient and veteran trees, which are specifically referenced as integral to biodiversity and ecological connectivity.
- **Paragraph 187** – States that planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and ancient or veteran trees, unless there are wholly exceptional reasons and a suitable compensation strategy in place.
- **Paragraphs 105 and 112** – Promote the integration of green infrastructure, including tree planting, in street design and layout to support healthy and sustainable communities.
- **Paragraph 139** – Requires new developments to include tree-lined streets as standard practice, with provisions for appropriate long-term management and maintenance.
- **Glossary (Annex 2)** – Defines ancient and veteran trees as irreplaceable habitats, reinforcing their protection under national policy and supporting their retention and sensitive management through the planning process.

These provisions support the application of BS5837:2012 in ensuring that the design, demolition, and construction processes consider the protection and enhancement of existing trees and the integration of new tree planting. They also align with BS8545:2014 in ensuring that newly planted trees are established to maturity, contributing to the long-term green infrastructure and ecological resilience of development sites.

5 Arboricultural Impact Assessment

5.1 Summary of Tree Impact Assessment

All the trees within the affected area of the development were surveyed. Within the area of the proposed development, there is a total of 13 trees and 2 Hedges included in the survey, the Hedge is counted in tree totals below, these were classified as follows:

- 0 Category **A** Trees
- 3 Category **B** Trees and Hedges
- 11 Category **C** Trees
- 1 Category **U** Trees

5.2 Detailed Impact Assessment

Please refer to attached documents Tree Data and Tree Constraints Plan when reading below information:

5.2.1 Category A Trees and Groups (High Quality)

- 0 Category **A** trees or groups require work.

5.2.2 Category B Trees and Groups (Moderate Quality)

- 0 Category **B** trees or groups require work.

5.2.3 Category C Trees and Groups (Low Quality)

- 10 Category **U** trees or groups require work. T1, T3, T4, T6, T7 T8, T9, T10, and T11 all require felling to facilitate the development. T12 is recommended for removal due to its significant overhang to facilitate access.

5.2.4 Category U Trees and Groups

- 1 Category **U** trees or groups require work. T2 has been categorised as unsuitable for retention however is not scoped to be removed under this scheme at this time.

5.3 Comments on Tree Conditions

The Lawson Cypress trees along the front boundary appear to have been topped historically, likely 15+ years prior to survey. Their canopy structure has recovered to give the typical conical shape however the growth habit of the limbs has left previously horizontal limbs to become apical stems all competing within the tree. The upward curve of these limbs is likely to be a future failure point as the limbs continue to grow.

Tree health across the remaining site was generally considered good. The main noted defects with trees lie with the neighbouring trees, T2, T12 and T13, with decay and decline noted on T2 and T13, both T2 and T12 have significant overhang into Manor Lodge.

5.4 Previous Tree Works

There has been a level of clearance at this site, removing low quality trees and shrubs plus an unmanaged hedge along the eastern boundary. As mentioned previously, the Cypress at the front of the site have been historically reduced.

5.5 Proposed Tree Works

5.5.1 Arboriculturally Necessary Tree Works

T2, a third-party tree, is exhibiting structural decay, for good management it is recommended this tree is removed. T13, also a third-party tree, is also exhibiting some decline visible from Manor Lodge, the base of this tree was not visible, so it is undetermined if there is evidence of structural decline. These trees should be discussed with the relevant owner regarding the management and longevity of these trees on their site.

5.5.2 Works to Facilitate Development Implementation

Remaining trees situated within Manor Lodge boundaries are recommended to be removed to facilitate the proposed designs and allow seamless implementation and scope for improvement where trees currently reside.

T1 is in an unsuitable position and will be infringing on a building if retained.

T3 and T4 are both low quality and require removal to allow the statutory pedestrian Access into the site.

T6-T11, whilst larger trees on site, are of low quality and likely to receive future pressure for severe reduction or removal. Their removal can be mitigated by planting species which will add longevity and biodiversity to the site.

5.6 Impact on Local Amenity

Where T1, T3, T4, T6-T11 are removed, this would present somewhat of an open space where the trees stood, however the retention on H2 along the site front together with the retention of the wall would not expose the public eye to the site during its construction. The compensatory planting would recreate the screen that was removed and improve both the kerb appeal and visual amenity on site.

The Streetscene currently contains many mature trees of varying species throughout this area, the proposed trees would not adversely impact this scene and would create the biggest visual improvement to the neighbours directly across from the site. They would benefit from increased visibility and light to their properties.

5.7 Development Impact on Current and Remaining Tree Stock

5.7.1 Demolition Work and Site Set Up

Remaining trees under potential pressure during works are primarily third party trees, T2, T5, T12 and T13. Under the Arboricultural Method Statement all tree works should be carried out before building work commences, leaving no trees proposed for removal under pressure or impact from demolition works.

5.7.2 Construction

Where surfaces are proposed to be changed, there are potential conflicts to third party trees, T13 is marked to have some slight encroachment into Manor Lodge and will require careful excavation around the site exit. T5 has a substantial root zone within the garden it is situated, so is possible to have roots pruned where possible to prevent future surface damage or uplift, plus allow the installation of the necessary surfacing and support.

T12, T13 and H1 could come under pressure where the walls adjacent to the trees are restored or removed and replaced, liaison with the tree owner next door may be viable to work on removal/replacement, however, should not be considered a given and these trees should be accounted for within the process.

Where works are undertaken to the walls being retained, this should be limited to repairs if necessary and overall replacement is likely to cause more harm than benefit to the trees.

5.7.3 Hard Surfaces and Drainage

SUDS and other drainage systems can be designed to incorporate the rebuilding and landscaping of the central area in between the vehicle entrance/exit. This makes a suitable area for attenuation of surface water and can double up to water newly planted trees without using freshwater resources.

5.8 Proposals to Mitigate Impact

5.8.1 Compensatory Planting

A total of 10 trees/hedges are proposed to be removed on site. Landscaping plans can depict the location of new trees and shrub plantings to mitigate the removal of T1, T3 and T4. These trees are easily replaceable with woody shrubs to suit the landscaping.

The removal of T6-T11 and H2 should be compensated with species of trees which will grow to a significant stature for the site and add good biodiversity. Fastigiate or pyramidal crowned species would be preferential here to prevent future pruning pressure from branch overhang on parking spaces.

The space for new planting in the centre of the driveway should have any retaining walls properly built and protected from root ingress using root barriers.

The proposed SUDs for this site can include attenuation within a new tree planting and landscaping area. Water butts installed on site can provide water for establishing new trees. The commitment for the compensatory planting is recommended to be secured by a condition.

There has been a landscape design drawn up by Grace Rogers Garden Design which shows an adequate replanting proposal for the site, this replaces the trees on site in a greater quantity than is removed, with species choice including *Magnolia*, Hornbeam, Apple, *Sorbus* and Beech. Along the rear boundary of the site is a row of Holly trees creating a barrier to the adjacent school.

H2 is proposed to be replaced by a mix of native species hedging which will increase the diversity on site.

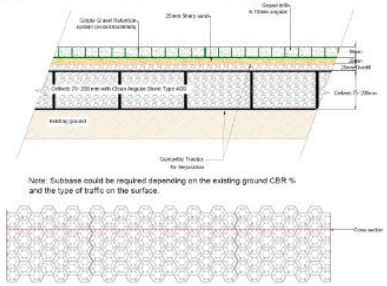
5.8.2 Special surfacing measures

Where roots from T5 are likely to be encountered at the existing pedestrian entrance, roots that are unable to be pruned sufficiently should be adequately protected with an engineered solution. A cellular confinement system is a suitable system for this and would allow for final surfacing over the rooting area, while maintaining low levels of compaction and root damage.

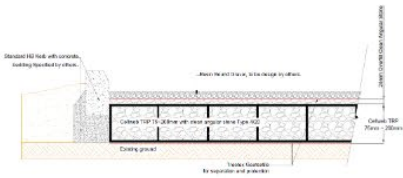
Installation of a cellular confinement system can be found from the manufacturer, one example is Geosynthetics. An excerpt of their technical manual is below, showing the construction of a block paved footpath using their Cellweb system, the full document is appended.

Surfacing Options

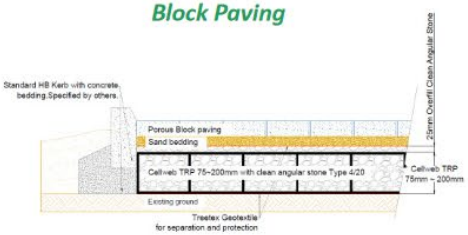
Golpla® Grass & Gravel Pavers



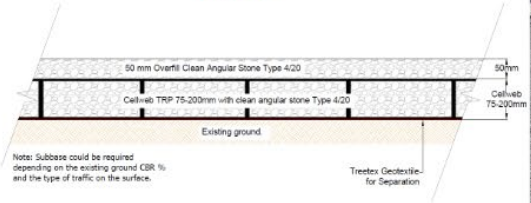
Resin Bound Gravel



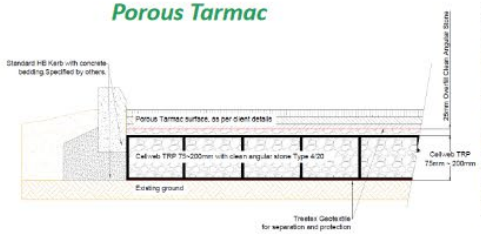
Block Paving



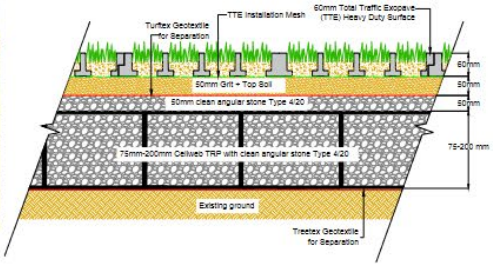
Gravel



Porous Tarmac



TTE® Heavy Duty Pavers



6 APPENDICES

7 APPENDIX A - Tree Data

BS5837:2012 Tree Survey

Rainfords Tree Care

Client: Merchant Land Ltd
Project: Manor Lodge
Survey Date: 11/12/2022
Surveyor: Robert Rainford

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
H1										Estimated Measurements	
A Hedgerow - *Spp.*	3	1	120	N 2 E 2 S 2 W 2	1 1 1 1	M	A: 6.5 R: 1.43	Good	C: Good S: Good B: Good	No action :: Unspecified Neighbouring hedgerow consisting of Portuguese laurel and cherry laurel.	B.2 >40 yrs
H2										Estimated Measurements	
Common Yew *Taxus baccata*	2	1	50	N 0.5 E 0.5 S 0.5 W 0.5	1 1 1 1	M	A: 1.1 R: 0.59	Good	C: Good S: Good B: Good	No action :: Unspecified Yew hedge along front of site. Offers good screen.	B.2 >40 yrs
T1											
Plum *Prunus Domestica*	6	1	190	N 2.5 E 2.5 S 2.5 W 2.5	2 2 2 2	SM	A: 16.3 R: 2.27	Good	C: Good S: Good B: Good	Fell :: Fell and remove stump(s) Growing close to boundary wall. Fell to facilitate development	C 20 to 40 yrs
T2										Estimated Measurements	
Common Pear *Pyrus communis*	5	1	200	N 1 E 4 S 1.5 W 1	2 2 2 2	M	A: 18.1 R: 2.4	Fair	C: Good S: Fair B: Fair	Fell :: Fell and remove stump(s) Ganoderma bracket at base of tree and on stem. Tree belongs to neighbours however full tree encroaches into site hanging over old garage. Removal recommended.	U <10 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

All trees were inspected from ground level using the VTA technique unless specified.

Tree and Tag No Species	Hght (m)	Stems No	 Ø (mm)	Crown Spread (m)	 Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
T3											
Common Beech *Fagus sylvatica*	3	1	160	N 1 E 1 S 1 W 2.5	1.5 1.5 1.5 1.5	SM	A: 11.6 R: 1.92	Good	C: Good S: Good B: Good	Fell :: Fell and remove stump(s) Old part of beech hedge at site entrance. Majority of branches hang over entrance towards highway. Fell to facilitate development	C 20 to 40 yrs
T4											
Common Beech *Fagus sylvatica*	4	1	160	N 1 E 1 S 2 W 2.5	1.5 1.5 1.5 1.5	SM	A: 11.6 R: 1.92	Good	C: Good S: Good B: Good	Fell :: Fell and remove stump(s) Old part of beech hedge at site entrance. Majority of branches hang over entrance towards highway. Fell to facilitate development	C 20 to 40 yrs
T5										Estimated Measurements	
Monterey Cypress *Cupressus macrocarpa*	0	1	600	N 3 E 3 S 3 W 3	2 2 2	M	A: 162.9 R: 7.2	Good	C: Good S: Good B: Good	No action :: Unspecified Neighbouring tree	B.2 >40 yrs
T6											
Lawson Cypress *Chamaecyparis lawsoniana*	16	2	650 (Eq)	N 3 E 3 S 3 W 3	1 1 1 1	M	A: 191.2 R: 7.8	Good	C: Good S: Good B: Good	Tree has been historically topped. Several upwardly curved branches in canopy. Liable to future failure.	C 20 to 40 yrs
T7											
Lawson Cypress *Chamaecyparis lawsoniana*	16	1	410	N 3 E 3 S 3 W 3	1 1 1 1	M	A: 76.1 R: 4.92	Good	C: Good S: Good B: Good	Tree has been historically topped. Several upwardly curved branches in canopy. Liable to future failure.	C 20 to 40 yrs
T8											
Lawson Cypress *Chamaecyparis lawsoniana*	16	1	110	N 2 E 2 S 2 W 2	1 1 1 1	M	A: 5.5 R: 1.32	Good	C: Good S: Good B: Good	Tree has been historically topped. Suppressed tree within group	C 20 to 40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

All trees were inspected from ground level using the VTA technique unless specified.

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
T9											
Lawson Cypress *Chamaecyparis lawsoniana*	16	3	653 (Eq)	N 3 E 3 S 3 W 3	2 2 1 1	M	A: 193.2 R: 7.84	Good	C: Good S: Good B: Good	Tree has been historically topped. Several upwardly curved branches in canopy. Liable to future failure. Unions at base of stem are included.	C 20 to 40 yrs
T10											
Lawson Cypress *Chamaecyparis lawsoniana*	16	1	110	N 2 E 2 S 2 W 2	1 1 1 1	M	A: 5.5 R: 1.32	Good	C: Good S: Good B: Good	Tree has been historically topped. Suppressed tree within group	C n/a
T11											
Lawson Cypress *Chamaecyparis lawsoniana*	16	2	499 (Eq)	N 3 E 3 S 3 W 3	4 4 1 1	M	A: 112.8 R: 5.99	Good	C: Good S: Good B: Good	Fell :: Fell and remove stump(s) Tree has been historically topped. Several upwardly curved limbs becoming stems. Grown at top of raised area. Poorly formed branches weighted over entrance.	C 20 to 40 yrs
T12										Estimated Measurements	
Plum *Prunus Domestica*	4	1	80	N 1 E 3 S 1 W 1	2 2 2 2	SM	A: 2.9 R: 0.96	Good	C: Good S: Fair B: Good	Fell :: Fell to ground level Neighbouring tree with full crown overhang into site. Recommend removal after consultation with owner.	C 10 to 20 yrs
T13										Estimated Measurements	
Common Pear *Pyrus communis*	7	2	430 (Eq)	N 2 E 2.5 S 4 W 2	2 2 2 2	OM	A: 83.7 R: 5.16	Decline	C: Fair S: Fair B: Fair	Cut back growth :: From site/fence/roadway to 3.0m height Neighbouring tree with large proportion of crown hanging over site. Damaging boundary wall. Tree is declining with moderate Deadwood within crown. Recommend cutting back to regain space on site. Moderate reduction recommended to decrease failure risk.	C <10 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

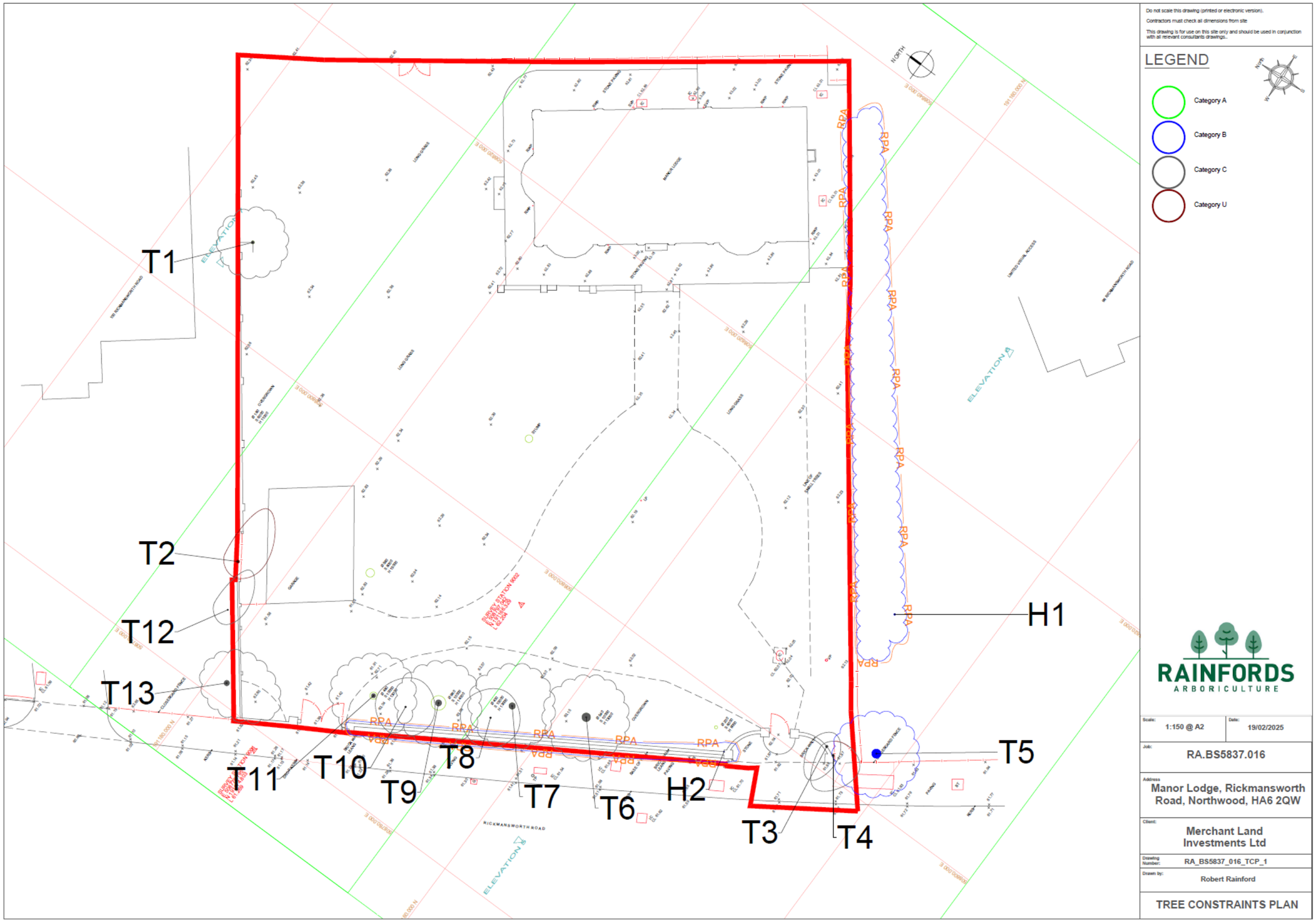
Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

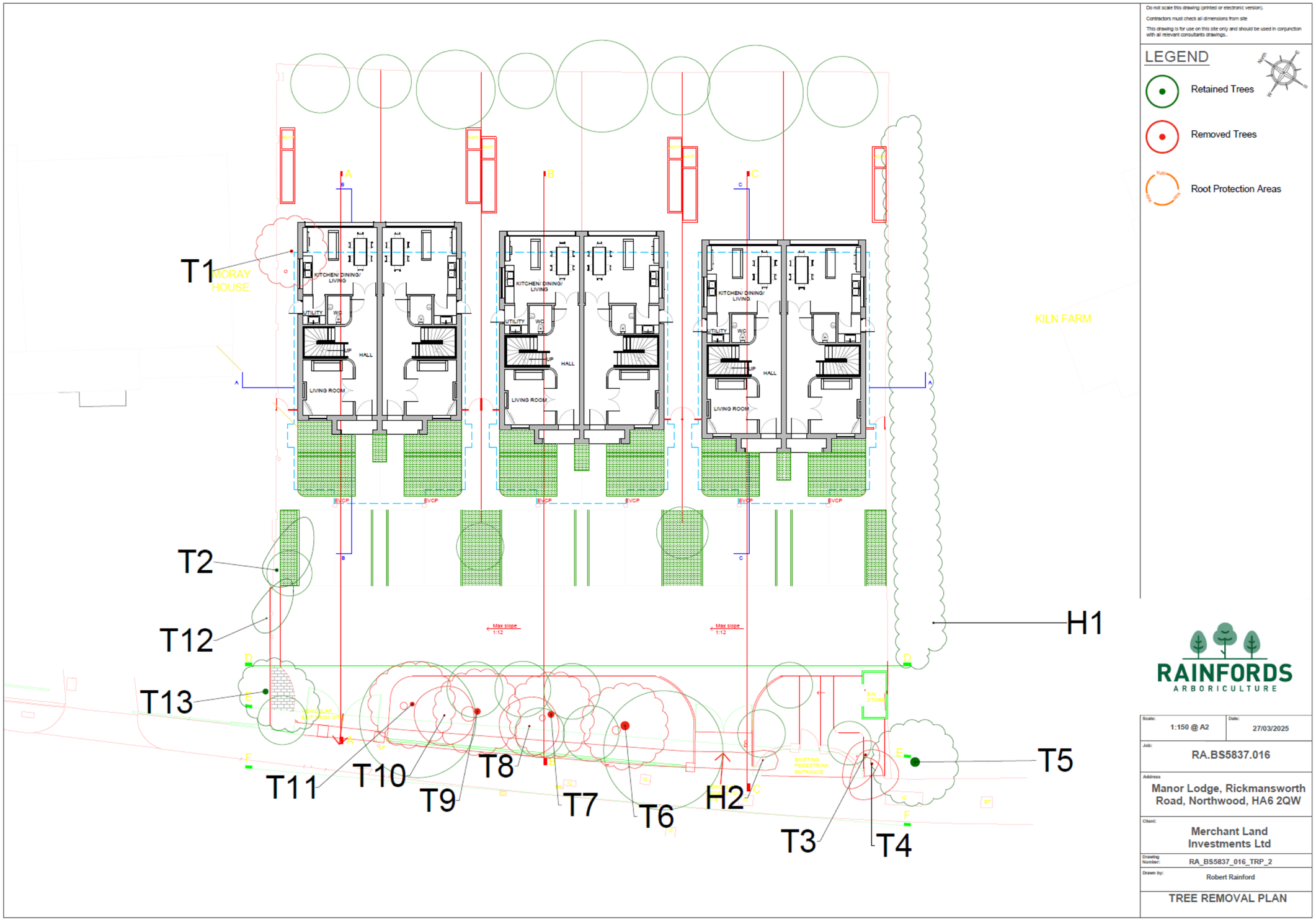
ERC: Estimated Remaining Contributio

All trees were inspected from ground level using the VTA technique unless specified.

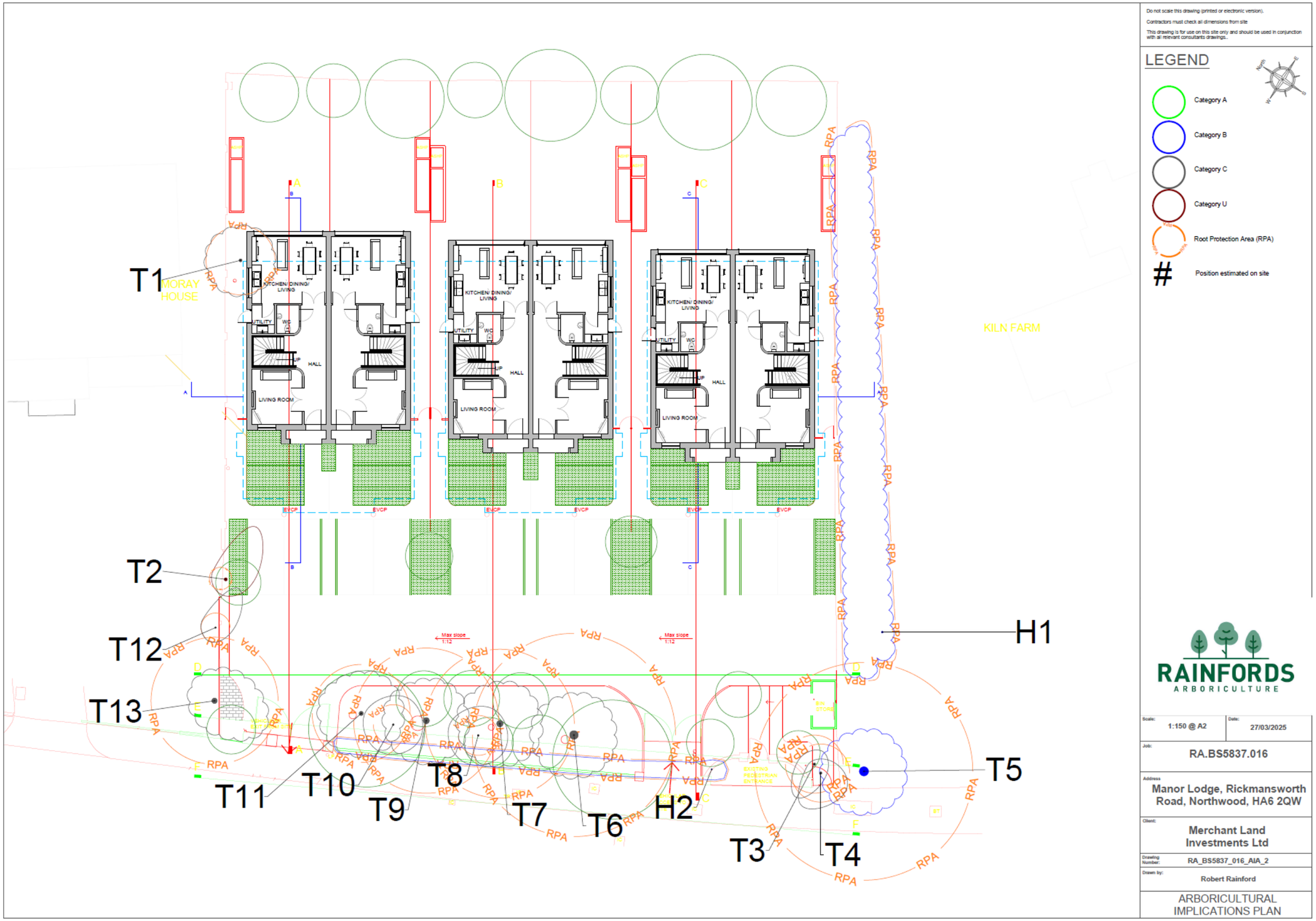
8 APPENDIX B - Tree Constraints Plan



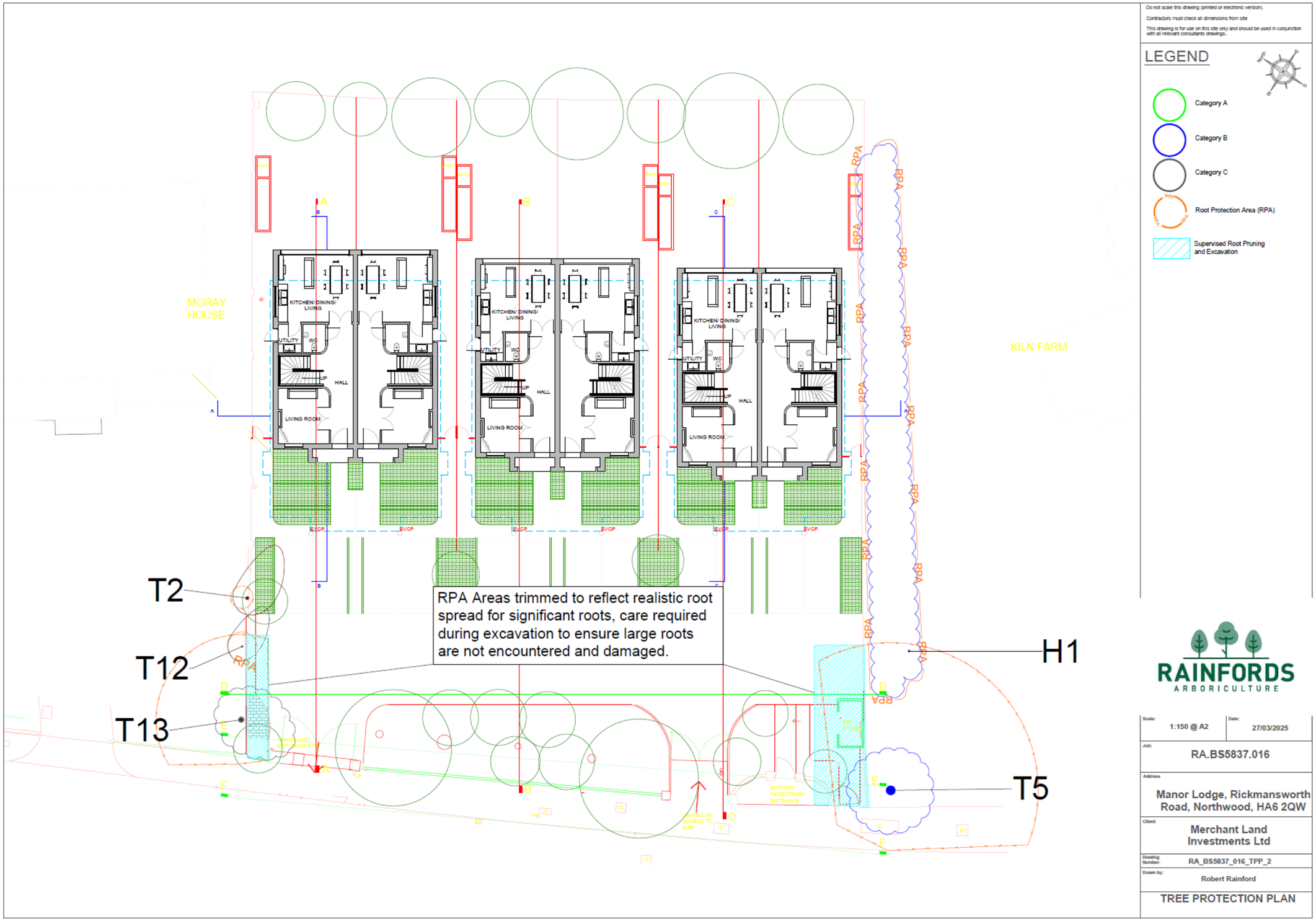
9 APPENDIX C - Tree Removal Plan



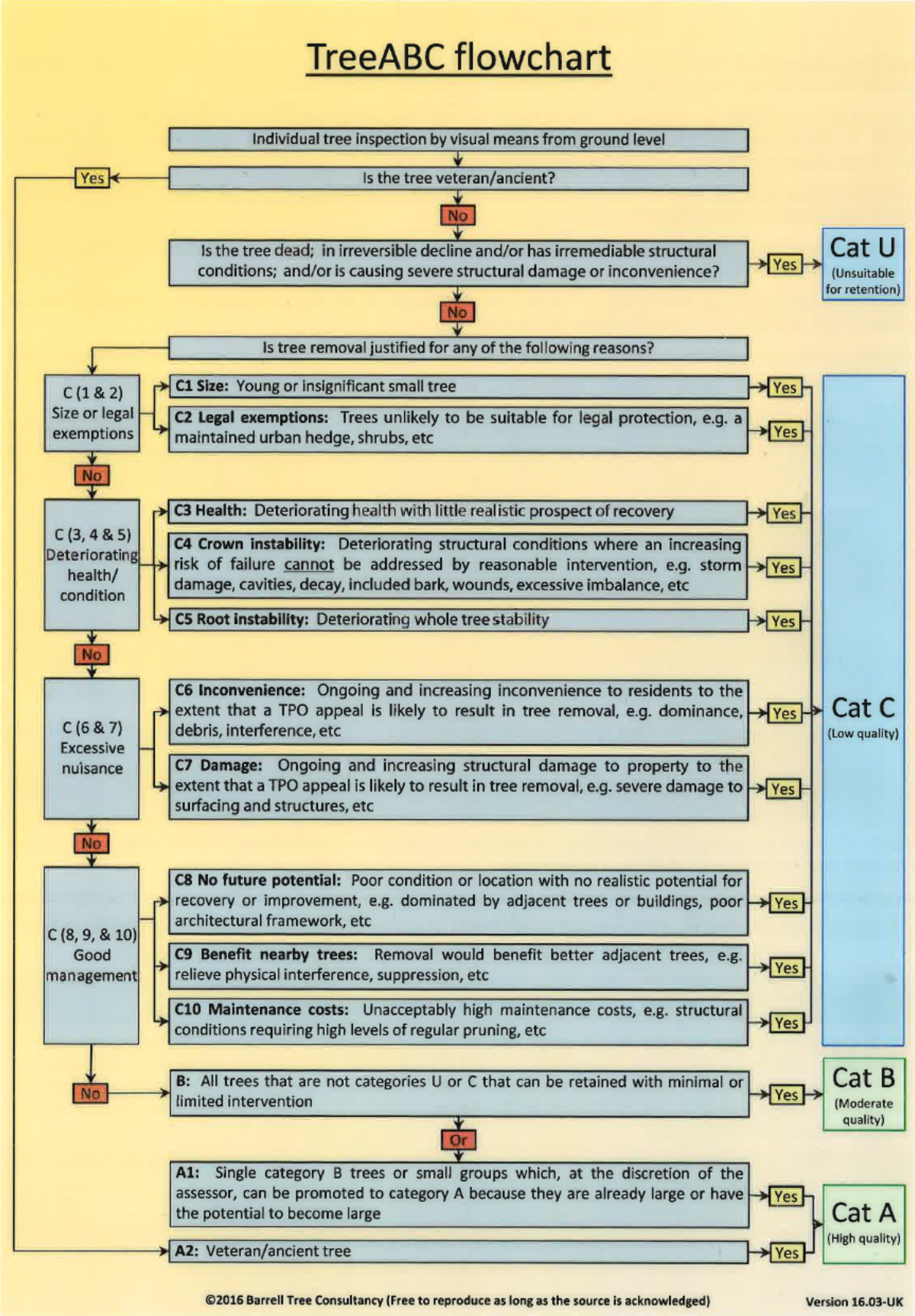
10 APPENDIX D – Arboricultural Implications Plan



11 APPENDIX E - Tree Protection Plan



12 APPENDIX F – Tree Survey Categorisation



13 APPENDIX G - Glossary of Arboricultural Terms

Absorptive roots	Non-woody, short-lived roots, generally having a diameter of less than one millimetre, the primary function of which is uptake of water and nutrients
Adaptive growth	In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stress.
Adaptive roots	The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading
Adventitious shoots	Shoots that develop other than from apical, axillary or dormant buds; see also 'epicormic'
Anchorage	The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree
Architecture	In a tree, a term describing the pattern of branching of the crown or root system
Axil	The place where a bud is borne between a leaf and its parent shoot
Bacteria	Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms
Bark	A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm; occasionally applied only to the periderm or the phellem
Basidiomycota (Basidiomycetes)	One of the major taxonomic groups of fungi; their spores are borne on microscopic peg-like structures (basidia), which in many types are in turn borne on or within conspicuous fruit bodies, such as brackets or toadstools Most of the principal decay fungi in standing trees are basidiomycetes
Bolling	A term sometimes used to describe pollard heads
Bottle-butt	A broadening of the stem base and buttresses of a tree, in excess of normal and sometimes denoting a growth response to weakening in that region, especially due to decay involving selective delignification
Bracing	The use of rods or cables to restrain the movement between parts of a tree
Branch:	- A first order branch arising from a stem - A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches - A third order branch, subordinate to a lateral or primary branch, or stem and usually bearing only twigs
Branch bark ridge	The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem
Branch collar	A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base
Brown-rot	A type of wood decay in which cellulose is degraded, while lignin is only modified
Buckling	An irreversible deformation of a structure subjected to a bending load
Buttress zone	The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of the junctions
Cambium	Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally
Canker	A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria
Canopy species	Tree species that mature to form a closed woodland canopy
Cleaning out	The removal of dead, crossing, weak, and damaged branches, where this will not damage or spoil the overall appearance of the tree
Compartmentalization	The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and/or active defences operating at the boundaries of the affected region
Compression strength	The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees with special drilling devices
Compressive loading	Mechanical loading which exerts a positive pressure; the opposite to tensile loading
Condition	An indication of the physiological vitality of the tree. Where the term 'condition' is used in a report, it should not be taken as an indication of the stability of the tre
Construction exclusion zone	Area based on the Root Protection Area (in square metres) to be protected during development, by the use of barriers and/or ground protection
Crown/Canopy	The main foliage bearing section of the tree
Crown lifting	The removal of limbs and small branches to a specified height above ground level
Crown thinning	The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a well-balanced branch structure
Crown reduction/shaping	A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape
Crown reduction/thinning	Reduction of the canopy volume by thinning to remove dominant branches whilst preserving, as far as possible the natural tree shape

Deadwood	Dead branch wood, Branch or stem wood bearing no live tissues.
Decurrent	In trees, a system of branching in which the crown is borne on a number of major widely-spreading limbs of similar size (cf. excurrent)
Defect	In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment
Delamination	The separation of wood layers along their length, visible as longitudinal splitting
Dieback	The death of parts of a woody plant, starting at shoot-tips or root-tips
Disease	A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms
Distal	In the direction away from the main body of a tree or subject organism (cf. proximal
Dominance	In trees, the tendency for a leading shoot to grow faster or more vigorously than the lateral shoots; also, the tendency of a tree to maintain a taller crown than its neighbours
Dormant bud	An axial bud which does not develop into a shoot until after the formation of two or more annual wood increments; many such buds persist through the life of a tree and develop only if stimulated to do so
Dysfunction	In woody tissues, the loss of physiological function, especially water conduction, in sapwood
DBH (Diameter at Breast Height)	Stem diameter measured at a height of 1.5 metres (UK) or the nearest measurable point. Where measurement at a height of 1.5 metres is not possible, another height may be specified
Endophytes	Micro-organisms which live inside plant tissues without causing overt disease, but in some cases capable of causing disease if the tissues become physiologically stressed, for example by lack of moisture
Epicormic shoot	A shoot having developed from a dormant or adventitious bud and not having developed from a first-year shoot
Excrescence	Any abnormal outgrowth on the surface of tree or other organism
Excurrent	In trees, a system of branching in which there is a well-defined central main stem, bearing branches which are limited in their length, diameter and secondary branching (cf. decurrent)
Felling licence	In the UK, a permit to fell trees in excess of a stipulated number of stems or volume of timber
Flush-cut	A pruning cut which removes part of the branch bark ridge and or branch-collar
Girdling root	A root which circles and constricts the stem or roots possibly causing death of phloem and/or cambial tissue
Guying	A form of artificial support with cables for trees with a temporarily inadequate anchorage
Habit	The overall growth characteristics, shape of the tree and branch structure
Hazard beam	An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth; prone to longitudinal splitting
Heartwood/false-heartwood/ripe wood	Sapwood that has become dysfunctional as part of the natural aging processes
Heave	A term mainly applicable to a shrinkable clay soil which expands due to re-wetting after the felling of a tree which was previously extracting moisture from the deeper layers; also, the lifting of pavements and other structures by root diameter expansion; also, the lifting of one side of a wind-rocked root-plate
High canopy tree species	Tree species having potential to contribute to the closed canopy of a mature woodland or forest
Incipient failure	In wood tissues, a mechanical failure which results only in deformation or cracking, and not in the fall or detachment of the affected part
Included bark (ingrown bark)	Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact
Increment borer	A hollow auger, which can be used for the extraction of wood cores for counting or measuring wood increments or for inspecting the condition of the wood
Infection	The establishment of a parasitic micro-organism in the tissues of a tree or other organism
Internode	The part of a stem between two nodes; not to be confused with a length of stem which bear nodes but no branches
Lever arm	A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch
Lignin	The hard, cement-like constituent of wood cells; deposition of lignin within the matrix of cellulose microfibrils in the cell wall is termed Lignification
Lions tailing	A term applied to a branch of a tree that has few if any side-branches except at its end, and is thus liable to snap due to end loading
Loading	A mechanical term describing the force acting on a structure from a particular source; e.g. the weight of the structure itself or wind pressure
Longitudinal	Along the length (of a stem, root or branch)
Lopping	A term often used to describe the removal of large branches from a tree, but also used to describe other forms of cutting
Mature Heights (approximate):	

	- Low maturing – less than 8 metres high - Moderately high maturing – 8 – 12 metres high - High maturing – greater than 12 metres high
Microdrill	An electronic rotating steel probe, which when inserted into woody tissue provides a measure of tissue density
Minor deadwood	Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree
Mulch	Material laid down over the rooting area of a tree or other plant to help conserve moisture; a mulch may consist of organic matter or a sheet of plastic or other artificial material
Mycelium	The body of a fungus, consisting of branched filaments (hyphae)
Occluding tissues	A general term for the roll of wood, cambium and bark that forms around a wound on a woody plant (cf. wound wood)
Occlusion	The process whereby a wound is progressively closed by the formation of new wood and bark around it
Pathogen	A micro-organism which causes disease in another organism
Photosynthesis	The process whereby plants use light energy to split hydrogen from water molecules, and combine it with carbon dioxide to form the molecular building blocks for synthesizing carbohydrates and other biochemical products
Phytotoxic	Toxic to plants
Pollarding	The removal of the tree canopy, back to the stem or primary branches. Pollarding may involve the removal of the entire canopy in one operation, or may be phased over several years. The period of safe retention of trees having been pollarded varies with species and individuals. It is usually necessary to re-pollard on a regular basis, annually in the case of some species.
Primary branch	A major branch, generally having a basal diameter greater than 0.25 x stem diameter
Primary root zone	The soil volume most likely to contain roots that are critical to the health and stability of the tree and normally defined by reference BS5837 (2005) Guide for Trees in Relation to Construction
Priority	Works may be prioritised, 1 = high, 5 = low
Probability	A statistical measure of the likelihood that a particular event might occur
Proximal	In the direction towards from the main body of a tree or other living organism (cf. distal)
Pruning	The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs
Radial	In the plane or direction of the radius of a circular object such as a tree stem
Rams-horn	In connection with wounds on trees, a roll of occluding tissues which has a spiral structure as seen in cross-section
Rays	Strips of radially elongated parenchyma cells within wood and bark. The functions of rays include food storage, radial translocation and contributing to the strength of wood
Reactive Growth/Reaction Wood	Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth)
Removal of dead wood	Unless otherwise specified, this refers to the removal of all accessible dead, dying and diseased branch wood and broken snags
Removal of major dead wood	The removal of, dead, dying and diseased branch wood above a specified size
Respacing	Selective removal of trees from a group or woodland to provide space and resources for the development of retained trees
Residual wall	The wall of non-decayed wood remaining following decay of internal stem, branch or root tissues
Root-collar	The transitional area between the stem/s and roots
Root-collar examination	Excavation of surfacing and soils around the root-collar to assess the structural integrity of roots and/or stem
Root protection area	An area of ground surrounding a tree that contains sufficient rooting volume to ensure the tree's survival. Calculated with reference to Table 2 of BS5837 (2005) and shown in plan form in square metres
Root zone	Area of soils containing absorptive roots of the tree/s described The Primary root zone is that which we consider of primary importance to the physiological well-being of the tree
Sapwood	Living xylem tissues
Secondary branch	A branch, generally having a basal diameter of less than 0.25 x stem diameter
Selective delignification	A kind of wood decay (white-rot) in which lignin is degraded faster than cellulose

Shedding	In woody plants, the normal abscission, rotting off or sloughing of leaves, floral parts, twigs, fine roots and bark scales
Silvicultural thinning	Removal of selected trees to favour the development of retained specimens to achieve a management objective
Simultaneous white-rot	A kind of wood decay in which lignin and cellulose are degraded at about the same rate
Snag	In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snag usually tends to die back to the nearest growing point
Soft-rot	A kind of wood decay in which a fungus degrades cellulose within the cell walls, without any general degradation of the wall as a whole
Spores	Propagules of fungi and many other life-forms; most spores are microscopic and dispersed in air or water
Shrub species	Woody perennial species forming the lowest level of woody plants in a woodland and not normally considered to be trees
Sporophore	The spore bearing structure of fungi
Sprouts	Adventitious shoot growth erupting from beneath the bark
Stem/s	The main supporting structure/s, from ground level up to the first major division into branches
Stress	In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature
Stress	In mechanics, the application of a force to an object
Stringy white-rot	The kind of wood decay produced by selective delignification
Storm	A layer of tissue which supports the fruit bodies of some types of fungi, mainly ascomycetes
Structural roots	Roots, generally having a diameter greater than ten millimetres, and contributing significantly to the structural support and stability of the tree
Subsidence	In relation to soil or structures resting in or on soil, a sinking due to shrinkage when certain types of clay soil dry out, sometimes due to extraction of moisture by tree roots
Subsidence	In relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight
Taper	In stems and branches, the degree of change in girth along a given length
Target canker	A kind of perennial canker, containing concentric rings of dead occluding tissues
Targets	In tree risk assessment (with slight misuse of normal meaning) persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it
Topping	In arboriculture, the removal of the crown of a tree, or of a major proportion of it
Torsional stress	Mechanical stress applied by a twisting force
Translocation	In plant physiology, the movement of water and dissolved materials through the body of the plant
Transpiration	The evaporation of moisture from the surface of a plant, especially via the stomata of leaves; it exerts a suction which draws water up from the roots and through the intervening xylem cells
Understorey	A layer of vegetation beneath the main canopy of woodland or forest or plants forming this
Understorey tree species	Tree species not having potential to attain a size at which they can contribute to the closed high canopy of a woodland
Vascular wilt	A type of plant disease in which water-conducting cells become dysfunctional
Vessels	Water-conducting cells in plants, usually wide and long for hydraulic efficiency; generally, not present in coniferous trees
Veteran tree	A loosely defined term for an old specimen that is of interest biologically, culturally or aesthetically because of its age, size or condition and which has usually lived longer than the typical upper age range for the species concerned
White-rot	A range of kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded
Wind exposure	The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity
Wind pressure	The force exerted by a wind on an object
Windthrow	The blowing over of a tree at its roots
Wound dressing	A general term for sealants and other materials used to cover wounds in the hope of protecting them against desiccation and infection; only of proven value against fresh wound parasites
Wound wood	Wood with atypical anatomical features, formed near a wound

14 APPENDIX H - Report Caveats

14.1.1.1 Full Legal Disclaimer

This report was prepared as a report of work instructed by the client (as specified). Neither Rainfords Tree Care nor any associated company, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the report and its findings.

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14.1.1.4 Specific - Trees

All tree inspections, unless specified, have been undertaken from ground level and using non-invasive techniques. Comments contained within the report on the condition and risk associated with any tree relate to the condition of the tree at the date and time of survey. Please note that the condition of trees is subject to change. This change may occur from, but is not limited to; biological and non-biological factors as well as mechanical/physical changes to conditions in the proximity of the tree. Any freak weather events may cause physical changes to the structure of the trees beyond expectation or reasonable foreseeability, to which this report cannot be held to account. Trees should be inspected at intervals relative to identified site risks and in accordance with relevant HSE and Central Government guidance. Rainfords Tree Care can provide further information on this matter if required.

Please note no statutory control checks have been undertaken (unless specified). Where tree surgery works have been identified these works assume that planning is approved, no tree works should be undertaken prior to determination of this application without up-to-date confirmation of the Tree Preservation Order/Conservation Area Status of the vegetation.

All works should be undertaken in accordance with the appropriate Duty of Care. This should include, for example, site specific risk assessments and due diligence inspections for the presence of protected species.

Any comment relating to 3rd party trees has been made without full access to the tree(s). Should these trees have any impact on the proposed development we would advise you to instruct us to contact the 3rd party and undertake further inspection work.