BS5837:2012 -Trees in relation to design, demolition and construction. Arboricultural matters relating to land at Chapel St, Crowland.

Prepared by: John Wilcockson

Arboricultural Consultant.

Tech Cert (Arbor A)

Date: 8/2/2017

Contents

1. Instructions....3
2. Introduction....3
3. Tree survey....3
4. Legal Constraints....5
5. Arboricultural considerations in relation to development....6
5.1 Rooting structure....6
5.2 Typical rooting structure of a tree....7
5.3 How can trees be damaged?....7
6. Site information....8
7. Tree survey findings....9
8. Implications....11
9. Arboricultural Method Statement & Tree Protection Plan....11
9.1 Sequenced Methods of Demolition, Construction and Tree Protection....11
9.2 Phase 1 Undertake Arboricultural Works....12
9.3 Phase 2 Tree Protection Fencing....13
9.4 Ground protection....14
9.5 Services....14
Appendix 1: Tree Inspection/Survey Results....15
Appendix 2 Tree Constraints....19
Appendix 3 Implications....23
Appendix 4 Tree Protection....27
Appendix 5 Fencing specification....30
Appendix 6 Signage....31
Appendix 7 Ground guards....32

1. Instructions

This report was commissioned by David Turnock of DT Architects with instruction to carry out an inspection of trees at Chapel street, Crowland in line with *BS5837:2012 Trees in relation to design, demolition and construction - Recommendations.*

The objectives of this report are as follows:

- To make an assessment of the trees' condition and identify any faults.
- To provide Tree Constraints details and advise on site layout options.
- Once a design has been arrived at, to then prepare tree protection details.
- A copy of drawing 2382 AL0101 & a site topo have been provided.

2. Introduction

This document has been prepared to fulfil the requirements for the proposal in accordance with the Department for Communities and Local Government guidance on information requirements and validation, and is set out in compliance with British Standard 5837 Trees in relation to design, demolition and construction recommendations 2012.

This report addresses the arboricultural issues relating to the potential for development at the above site.

3. Tree survey

The trees were assessed objectively using 'Visual Tree Assessment' (VTA) techniques from the ground. VTA is a methodology, employed by arboriculturists, to evaluate the structural integrity of a tree, relying on observation of a trees biomechanical and physiological features; this is the method generally adopted and is appropriate in this instance. The survey includes an individual tree number listed sequentially, tree Species in both its common and botanical name, its height, stem diameter measured at 1.5m from ground level, spread of the radius of the crown by cardinal points, height of the crown above ground level, age classification its general condition and any general conditions structural or biological defects noted during the survey. An estimate of the remaining safe life expectancy (SLE) and the category as defined in BS 5837:2012 Recommendations cascade chart for tree quality assessment.

The root protection area (RPA) will be calculated from the stem diameter and this will identify the area which will require special protection during the works.

No trees on site were tagged due to the low numbers of specimens present.

Trees on the site have been divided into one of four categories (based on the cascade chart for tree quality assessment). These are classed as A, B, C or U (Section 4 of BS 5837) within the table in Appendix 1, Table 2. This gives an indication as to the tree's importance in relation to the site, the local landscape and, also, the value and quality of the existing trees on site. This assists informal decisions concerning which trees should be removed or retained should development occur. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below).

Categories A, B and C cover trees that should be a material consideration in the development process, each with three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural (nature conservation) values. Category U trees may have no significant landscape value, but it is not presumed that there is any overriding need to remove these unless stated otherwise in the description and recommendations. They are for this reason not considered as being significant within the planning process. In assigning trees to the A, B or C categories, and the presence of any serious disease or tree–related hazard is taken into account. If the disease is considered fatal and/or irremediable, or likely to require sanitation for the protection of other trees it may be categorised as U with a recommendation for work or even removal, even if they are otherwise of considerable value.

Category (A): Trees whose retention is most desirable and are of high quality and value. These trees are considered to be in such a condition as to be able to make a lasting contribution (a minimum of 40 years) and may comprise:

(i) Trees which are particularly good examples of their species especially rare or unusual, or essential components of groups or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue);

(ii) Trees, or groups of trees which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups);

(iii) Trees or groups of significant conservation, historical, commemorative or other value (e.g. Veteran or wood-pasture trees).

Category (B): Trees whose retention is considered desirable and are of moderate quality and value. These trees are considered to be in such a condition as to make a significant contribution (a minimum of 20 years) and may comprise:

(i) Trees that might be included in the high category but because of their numbers or slightly impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage), are downgraded in favour of the best individuals;

(ii) Trees present in numbers such that they form distinct landscape features and attract a higher collective rating than they would as individuals. Individually these trees are not essential components of formal or semi-formal arboricultural features, or trees situated mainly internally to the site and have little visual impact beyond the site;

(iii) Trees with clearly identifiable conservation or other cultural benefits.

Category (C): Trees that could be retained and are considered to be of low quality and value. These trees are in an adequate condition to remain until new planting could be established (a minimum of ten years) or are young trees with a stem diameter below 150 mm and may comprise:

(i) Trees not qualifying in higher categories;

(ii) Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value and or trees offering low or only temporary screening benefit;

(iii) Trees with very limited conservation or other cultural benefits.

Category (U): Trees that are considered to have no significant landscape value but it is not presumed that there is any overriding need to remove these unless stated otherwise in the description and recommendations. They are for this reason not considered as being significant within the planning process. These trees will be in such a condition that any existing value would be lost within 10 years and which should in the current context be ignored or removed for reasons of sound arboricultural management. Trees within this category are:

(i) 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;

(ii) Trees that are dead or are showing signs of significant, immediate or irreversible overall decline;

(iii) 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.

The Soil type was not assessed.

This report is valid for one year from the date of site inspection. The condition of trees can change following severe weather conditions, the effects of diseases and pests, and other abiotic factors.

4. Legal Constraints

Where Local Planning Authorities can assess trees as beneficial to the wider community in terms of their amenity value, they may be protected by a Tree Preservation Order (TPO).

In certain areas classified as Conservation Areas, all trees with a stem diameter of 75mm (measured at 1.5m above ground) are protected by Conservation Area legislation. The LPA must be given notice of any work intended so they can visit the site and then either protect the tree(s) with a TPO or allow the works to go ahead. Their decision must be made within a six-week period. If no decision is made within the six-week period, the work may be carried out, providing it is done within a two-year period.

If trees protected by a TPO or within conservation areas are cut-down, topped, lopped, uprooted or wilfully damaged or destroyed, the owner of the tree(s) and the contractor responsible for the work can both be legally prosecuted. The current maximum fine is £20,000 per tree at the Magistrates Court or unlimited fine at the Crown Court.

Trees that are dead or dangerous are exempt from legislation. It is common good practice to notify the LPA of intention to carry out work to trees that fall into these categories, preferably with some notice (e.g. one working week).

A leaflet produced by the DTLR (Protected Trees), covers the issues raised by this legislation.

Any works prescriptions for protected trees can be dealt with by way of inclusion into a Planning Application for development purposes; this avoids the need to make a separate tree application.

A check with the Local Planning Authority has not been carried out although it is understood that the mature off-site trees may be protected by a TPO – the current status should be checked however before any tree works commence.

Statutory wildlife obligations: The Wildlife and Countryside Act 1981 as amended by the Countryside and The Habitat Regulations 2012 provide statutory protection to birds, bats and other species that inhabit trees. All tree work operations are covered by these provisions and advice from an ecologist should be obtained before undertaking any works that might constitute an offence.

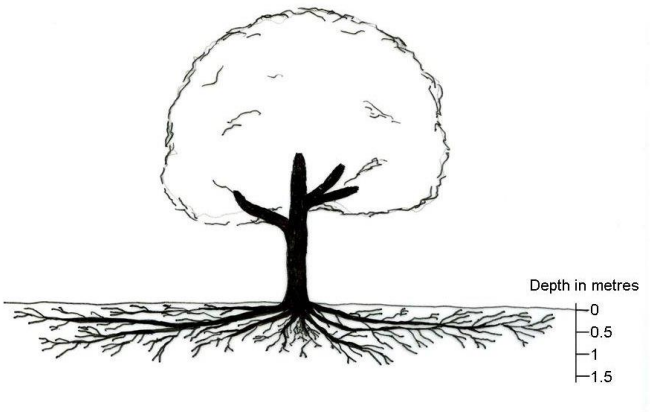
5. Arboricultural considerations in relation to development.

5.1 Rooting structure

Rooting structure is a key issue when dealing with trees and development. To ensure the survival of trees the British Standard Institute has introduced the concept of a Root Protection Area (RPA). The RPA is an area surrounding a tree that contains sufficient rooting volume to ensure the tree's survival and is represented in square metres. (BS5837 2012 discusses the extent and for of a trees root system.)

The following diagram represents the typical rooting pattern of a tree. Note that 90% of the trees roots are usually located within the top 1m of soil and that roots may spread well beyond the canopy. Therefore, no works are allowed within the RPA. Even a small trench 0.5 metres deep to accommodate a cable or drain may lead to the loss of the tree. When work is proposed or is absolutely necessary within the RPAs of retained trees the proposals will only be considered if supported by an agreed robust and realistic Arboricultural Method Statement, following recommendations within BS 5837 2012.

5.2 Typical rooting structure of a tree



To successfully integrate trees into a development it will be necessary to allow enough space in the design to allow trees to mature and flourish and to agree protection measures during the entire construction phase. Trees should be considered at the earliest design stage to allow them to be successfully integrated into new development, a survey of trees on and adjacent to the site should be one of the first steps in the design process.

5.3 How can trees be damaged?

Compaction of the soil

When soil is compacted, the soil structure is damaged by removing the spaces between soil particles preventing the exchange of gases and uptake of nutrients by trees. The storage of materials, including bricks, soil, gravel and cement, and the movement of vehicles can cause compaction. One vehicle movement can cause sufficient compaction to damage a tree. Compacted ground may alter soil drainage, resulting in the ground becoming waterlogged. The storage of materials and the movement of vehicles within RPAs will only be permitted when it is shown to be absolutely necessary and supported by an agreed robust and realistic Arboricultural Method Statement.

Excavations

Excavations within the RPA are likely to cause root severance. This may lead to loss of vigor, reduced uptake of water and nutrients, allow access for decay organisms and may compromise the tree's stability. Under exceptional circumstances, where excavation may be justified, hand digging will be required and the presence of an arboricultural consultant to supervise the works will be required on site.

Ground level changes

Both reduction and raising of soil levels can be detrimental even if this is only by a few centimeters. Reducing ground levels may sever roots, and can increase the drainage of a site thereby reducing water availability. Raising ground levels can cause compaction, and suffocate roots. There will be a presumption against the changing of ground levels within RPAs. Changing of ground levels within RPAs will only be permitted when it is shown to be absolutely necessary and supported by an agreed robust and realistic Arboricultural Method Statement.

Impact damage

This can be caused by machinery and includes torn branches, and damage to bark and trunk. Damaged areas of trees can allow the entry of decay organisms and reduced vigour. There will be a presumption against the movement of machinery and equipment within RPAs. The movement of machinery and equipment will only be permitted when it is shown to be absolutely necessary and supported by an agreed robust and realistic Arboricultural Method Statement.

Soil contamination

This can be caused by the spillage of oil, fuel and chemicals, mixing cement or other materials. To prevent leaching through the soil where significant tree roots can be found, all chemicals should be kept in a safe storage area downhill from trees at least 10m from the RPA. There will be a presumption against the storage of chemicals within 10m of the RPAs of retained trees and storage will only be permitted when it is shown to be absolutely necessary and supported by an agreed robust and realistic Arboricultural Method Statement.

Fires

Conducted and radiated heat as well as flames will damage trees resulting in the loss and damage to both major and fibrous roots, and damage to the trees vascular system under the bark even if the bark does not appear burnt. Keep fires a minimum of 10m from the outer crown spread of any retained trees or vegetation. If this clearance is not achievable, all waste must be disposed of off-site.

6. Site information

The site surveyed comprises an ex-school playing field laid to grass in an established residential area and is approximately 1.37 acres.

The western boundary boundary consists of low scrub - mainly nettles, with a couple of self-set trees.

The northern boundary is maintained conifer/evergreen hedge & fence with further nettles & scrub in the NW corner.

The southern boundary is dense Elder thicket and the eastern boundary is clear but with mature tree stock beyond, some of which have failed and have come down across the site boundary.

7. Tree survey findings

There are 2 young poor quality self-set Sycamore on the western boundary.



Whilst there were no significant defects, neither are particularly good specimens.

Along the southern boundary is a group of thicket stage Elder in poor condition overall, it appears to have been unmanaged for some time.



The northern boundary consists in the main of a managed Cypress hedge with an evergreen component in the NE corner, the NW boundary is also scrub – nettles in the main.



The eastern boundary is clear in site but beyond that, there is row of mature trees that extends from the northern edge to the southern edge – these are mainly Chestnuts (G1), located at approx. 5m from the boundary line. On the southern part of this boundary, a Willow has collapsed into the site.

A further smaller Willow (T5) is growing at a near horizontal angle into the site (also a smaller Ash (T5) under the G1). The Willow growth is likely a reaction from the tree seeking out available light with the canopy above from the mature trees shading it out.

T4 is a mature Crack Willow infested very heavily in ivy, as such there was little I could see in terms of structural condition.

T3 is a mature Horse Chestnut, again it appears to be in reasonably good health with the faults identified proportionate to its age.

Due to restricted access, I was unable to inspect any of these trees effectively. Despite this, most of the trees along this boundary appear to be in reasonably good health with the faults identified proportionate to their age. The group overall, is assessed as providing strong visual landscape benefits.

8. Implications

The proposed layout will require the removal of T1 for the access road, I would advise that T2 should also be removed due to its form & condition.

As can be seen from the layout plans at Appendix 3, there is a 0.7m incursion into the RPA at its greatest in terms of the garage and 0.4m from the corner of the house. This incursion is estimated to be less than 1% of the total RPA. Whilst there should ideally be no construction within the RPA, subject to the tree protection measures and Arb Method Statement being followed, I do not consider this incursion to be significant and there should be little adverse effect on the RPA of the trees.

The position of the eastern build suggests that there will be approximately 2m between the end of the buildings and the existing canopy of G1 trees. The lateral pruning prescribed at 9.2 will further increase the available working space.

The proposed layout indicates that there will be shading to the rear of the SE building however the house design indicates large windows across this area which will make the most of the available ambient light.

The NE plot will only be shaded across part of the eastern side of the garden and within the context of the overall plot size, it is my opinion that the shading will not be an issue.

Added to this, trees do not prevent 100% of the light from penetrating their canopies and indeed some shade is preferable in terms of excessive solar heating or glare.

Typically, amenity space within gardens is most commonly utilised afternoon/evening at which time both plots will be unaffected by the shade pattern.

There will be no impact on any of the remaining trees or hedge to the north.

It is recommended that the scrub growth around boundaries are removed and replaced as part of any landscaping scheme.

9. Arboricultural Method Statement & Tree Protection Plan

9.1 Sequenced Methods of Demolition, Construction and Tree Protection

With reference to relevant published guidance, the methodology of this statement follows a logical sequence essential to the efficacy of the protection measures. Reference may include: British Standard BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations; British Standard BS3998:2010 Tree Work. It is essential to the successful implementation of the principles set out in this document that effective supervision and enforcement are put in place from the outset.

In summary, some minor facilitation pruning may need to be carried out to prevent construction damage, Ground guards to be used adjacent to the eastern build and garage. Protective fencing to be installed before construction works commence to remain in situ until the development is complete.

9.2 Phase 1 Undertake Arboricultural Works

Remove T1 & T2.

Laterally prune G1 to the legal boundary to a height of 3m, max cut size 4 inches. These works are to prevent damage during the construction phase.

Remove the scrub along the boundaries.

Tree work requires skilled operators to perform pruning tasks in order to maintain the health and safe useful life expectancy of the trees, it is strongly recommended that construction staff **DO NOT** carry out any tree works.

Additional to this, a legal Duty of Care requires that all works specified should be carried out by qualified arboricultural contractors who have been competency tested to determine their suitability for such works in line with Health and Safety Executive guidelines. All works should be carried out in accordance with British Standard BS3998:2010 Recommendations for Tree Work.

Particular care needs to be addressed in dealing with legally protected species such as nesting birds and roosting bats which are protected under the Wildlife and Countryside Act 1981 (as amended) from intentional harm and killing and applies to roosting and hibernating bats and active bird nests. The protection of bird nests applies between mid-February to August inclusive.

9.3 Phase 2 Tree Protection Fencing

Tree protection will be installed prior to any ground-works commencing as per the Tree Protection Plans at Appendix 4, this shall remain in place throughout construction and be removed only after completion.

Please note that the measurements on the following plans are not to scale and assumptions have been made in terms of actual site layout. The suggested distance measurements are therefore estimated. The principal however is to protect as much of the RPAs as possible

The fencing will follow the edge of the RPAs of G1– 5m generally from the fence line apart from the sections around the buildings.

Where the fencing runs around the garage & house, the aim is to provide approximately 2m of space around the build points, these strips to be protected by way of ground guards/scaffold boards as per 9.4.

The fence is to be positioned 1.5 from the northern hedge.

The default specification as per figure 3 of BS 5837:2012 will be used (see Appendix 5) in order to minimise the risk of damage to roots.

Within the fenced zone, no materials or chemicals should be stored at any time, no fires should be lit, no pedestrian or vehicle traffic, and level changes within these areas should be kept to an absolute minimum. Every effort should be taken to protect a maximum possible area of the root system.

Clear notices are to be fixed to the outside of the fencing with words such as

‘TREE PROTECTION AREA – NO ACCESS OR WORKING WITHIN THIS AREA’.

See Appendix 6. These notices shall be A3 in size, laminated and fixed to the fencing using suitable aids such as tie wires.

The site agent, all contractors and other relevant personnel are to be informed of the role of the Tree Protection Fencing and their importance. A copy of the Tree Protection Plan will be displayed on site at all times during construction.

9.4 Ground protection

Ground guards such as Eve Trackpanel (see Appendix 7) or similar to be positioned in the areas marked in red covering a 2m width minimum, where space is limited due to angles, scaffold boards on top of 2 inches of woodchip are to be used as infill.

The scrub clearance and 2 trees for removal should provide sufficient chip.

9.5 Services

There are no trees implicated by the installation of services.



J Wilcockson

10/2/18

Appendix 1: Tree Inspection/Survey Results

Table 1 SURVEY KEY: Abbreviations and categories used in the survey are as follows:

survey are as follows:

Tree Ref.	As per corresponding number on plan	
Species	Common name and botanical name in italics.	
Height	Estimated height in metres	
Ø	Diameter measured in millimetres at 1.5m above ground level. # indicates estimate	
Branch spread	Measured in metres from the stem to limit of canopy to four cardinal points, N, S, E, W	
H.F.S.B/D.	Height (in metres) of First Significant Branch and Direction.	
H.C.C.	Height of crown clearance - the height to the lowest branch attachments	
Age Class	A description of the life stage of the tree.	
	NP	Newly Planted – up to three years from planting in the stage leading to establishment
	Y	Young – Less than 1/3 of the natural life span
	EM	Early Mature – Between 1/3 and 2/3 of the natural life span
	M	Mature – Over 2/3 of the natural life span
	OM	Over Mature – Over 2/3 of the natural life span and in an obvious state of decline
	V	Veteran – Older than the typical age range of the species and has high conservation and amenity value
Condition: Physiological and Structural	Description of the observed Physiological (vital phenomena / organic functions) and Structural (supporting or essential framework) of the tree	
	Good	A tree with no visible defects
	Fair	A tree with minor defects that if necessary can be addressed through maintenance or are of no long term significance
	Poor	A tree with major defects that cannot addressed through maintenance and could lead to its early decline
	Dead	Without life
	In addition specific diseases, defects or faults are described.	

Preliminary Recommendations	Recommendations for tree work where observed as necessary, including further investigations of suspected defects which may require more detailed assessment. If blank no works are recommended. CBR – could be retained.			
S.U.L.E.	Safe Useful Life Expectancy - estimated remaining contribution in years			
	Less than 10 years	10-20 years	20 -40 years	More than 40 years
BS Cat.	Category Grading according to BS5837: U or A, B, C.			
Root Protection Area. (RPA)	The root protection in m², as area and radial distance as measured from the centre of the tree stem. Where an # is present the R.P.A. cannot be achieved due to ground constraints, or it is located outside the site.			
Miscellaneous				
MS	Multiple stems			
GL	Ground Level			
Cavities	The physical size of cavities is measured in the following order: Height x Width x Depth. Measurements given are in millimetres.			
DEADWOOD	Deadwood considered for removal. Considered significant in size when at least 50mm in diameter x 1000mm length. Smaller sized pieces are not considered for removal unless stated.			
IBU	Included Bark Union – bark growing in the joint of a union, possibly problematic as the incremental growth forces limbs of the union apart possibly causing at least one to fail over time.			

The following pages show the results of the tree inspection. A '#' adjacent to a figure within the table indicates an estimated measurement.

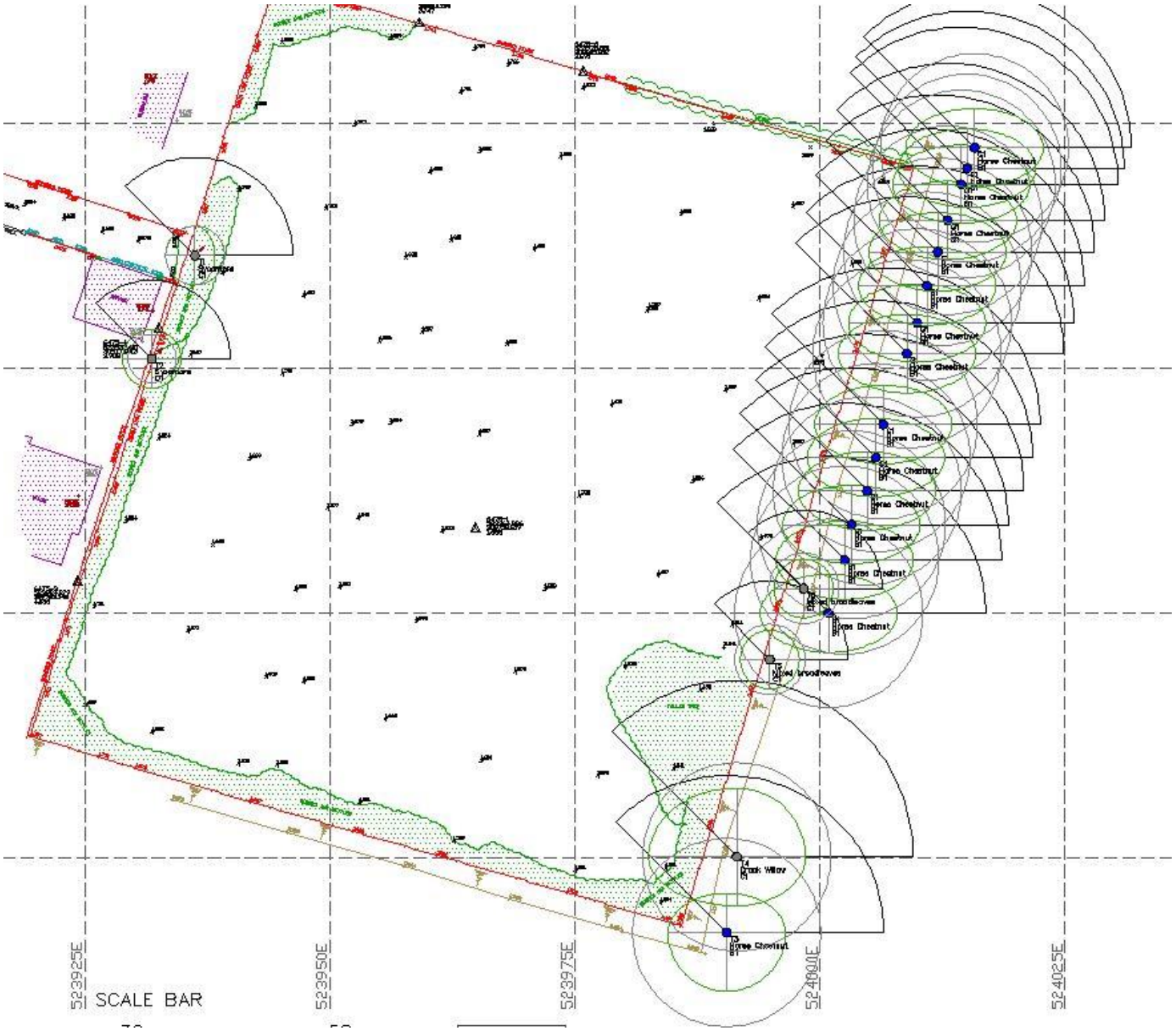
Table 2 Client: DT Architects date:14/12/17 Surveyor: John Wilcockson Weather: Dry, cold.

Tree Ref	Species	Age Class	BS Category	Ø (mm)	Stem count	Height (m)	Lowest crown height.	1st sig branch & direction	SULE	N	E	S	W	Condition: Physiological and Structural	Preliminary recommendations	RPA m (radius)
T1	Sycamore (Acer pseudoplatanus)	Y	C1	250	1	10	2	3(NE)	40+	3	2	3	3	Fair, heavy ivy, kink in main stem at 2m	Sever ivy	3
T2	Sycamore (Acer pseudoplatanus)	Y	C1	100,100,150	3	8	3	3(NE)	40+	3	3	3	3	Poor, tight fork at ground level, kink at 0.2m. Poor form	Fell/replace due to form and structural weakness.	2.47
T3	Aesculus hippocastanum (Horse Chestnut)	M	B1	800 est	1	16	1	-	40+	4	4	6	6	Heavy ivy, co-dominant stems, unable to assess further as off site.	Advise owner of duty of care.	2.0

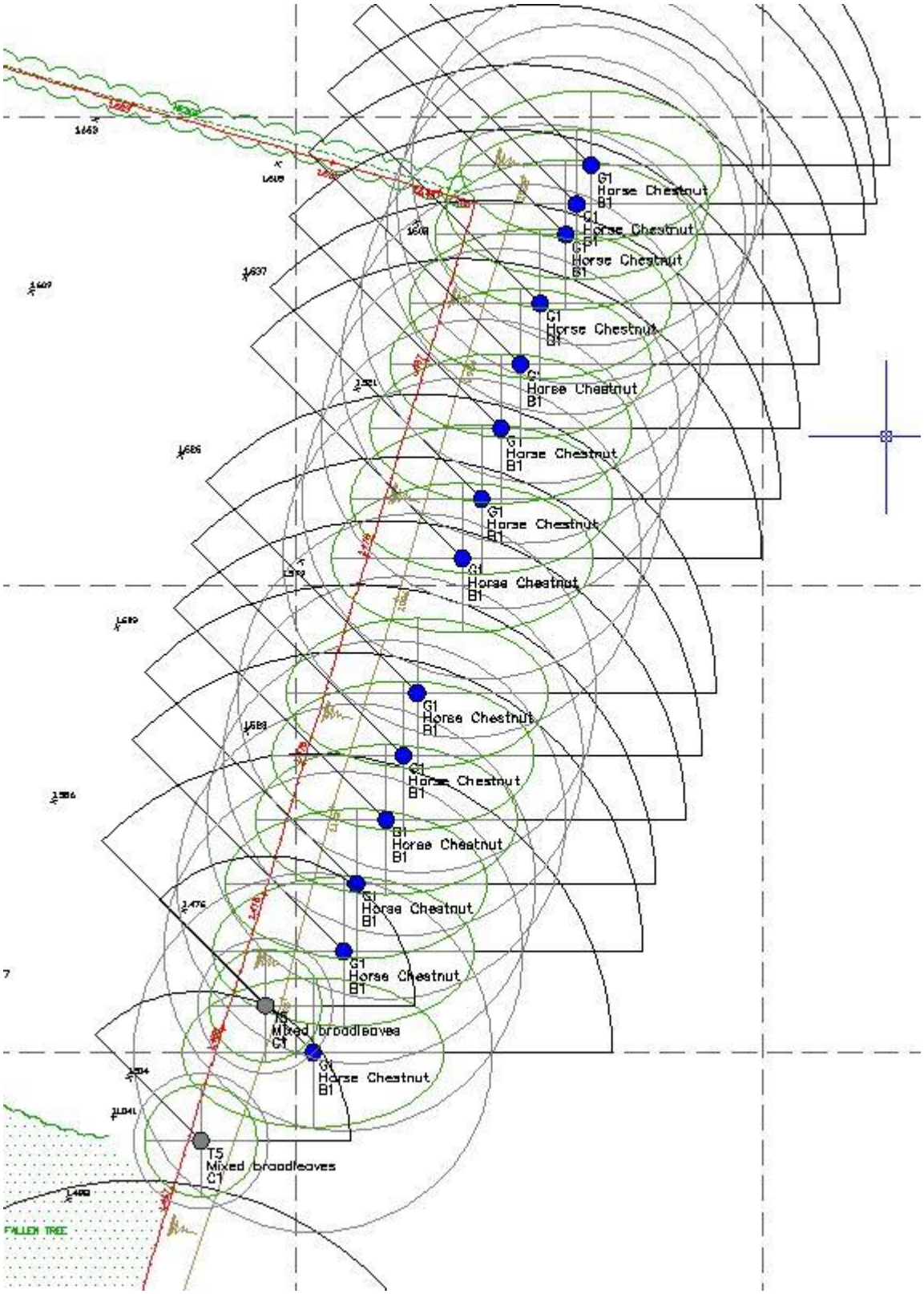
Tree Ref	Species	Age Class	BS Category	Ø (mm)	Stem count	Height (m)	Lowest crown height.	1st sig branch & direction	SULE	N	E	S	W	Condition: Physiological and Structural	Preliminary recommendations	RPA m (radius)
T4	Salix fragilis (Crack Willow)	M	C1	800 est	1	18	1	-	40+	7	7	5	9	Heavy ivy, co-dominant stems, unable to assess further as off site	Advise owner of duty of care.	3
G1	Aesculus hippocastanum (Horse Chestnut)	M	B1	800 est	1	16 av	3	-	40+	4	7	4	7	Off-site, heavy ivy, some co-dominant stems, signs of bleeding canker, old pruning wounds, minor and scattered major deadwood, unable to assess further as off site.	Advise owner of duty of care. Prune to legal boundary, max dia cut 4 inches.	2.47
H1	X Cupressocyparis leylandii (Leyland Cypress)	M	C1	100	1	3	0	-	40+	1	1	1	1	Managed Cypress and evergreen shrub hedge	No works required	1.2

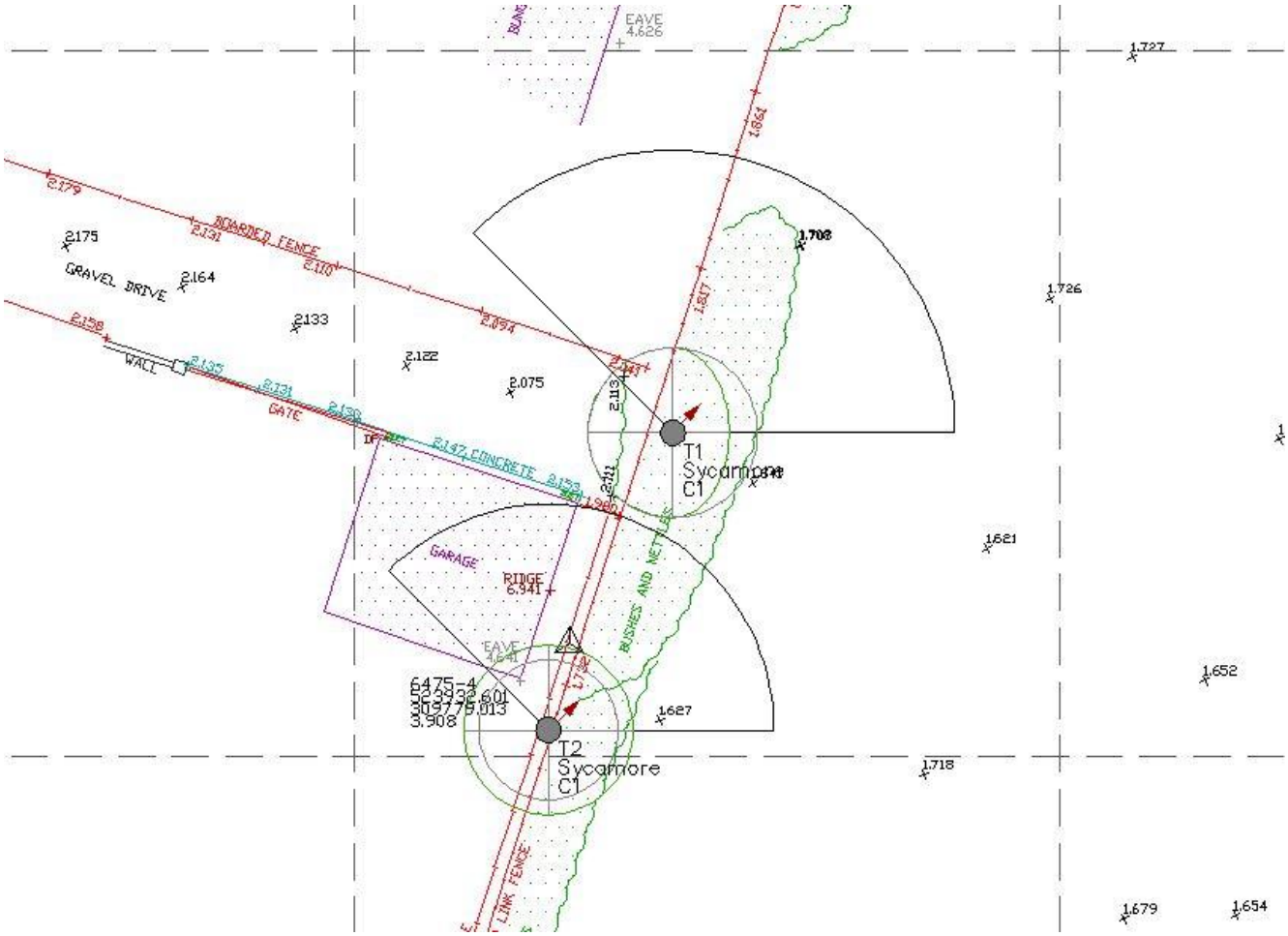
Appendix 2 Tree Constraints

Overview

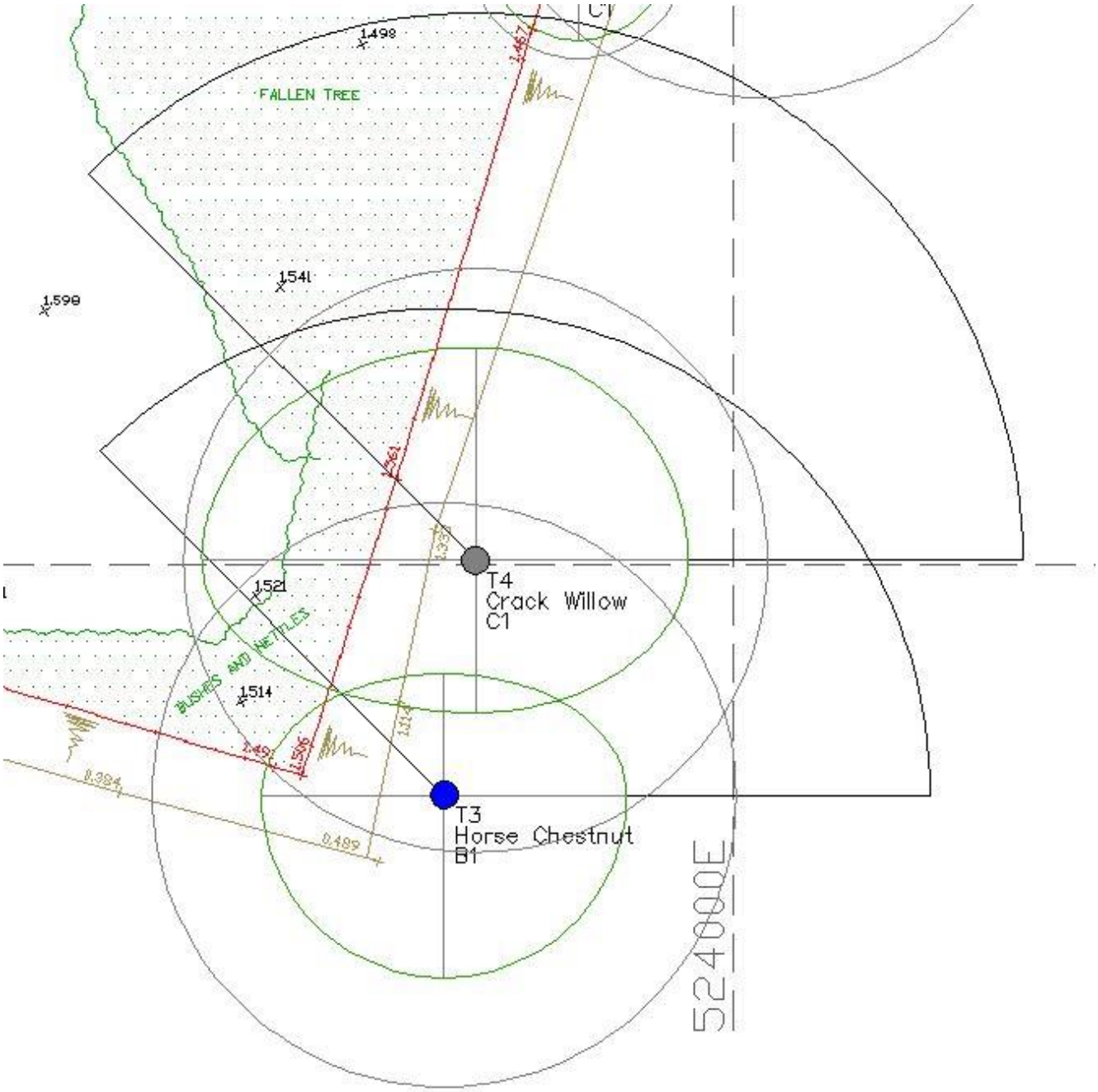


John Wilcockson
Arboricultural Consultant


G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
T5
Mixed broadleaves
C1
G1
Horse Chestnut
B1
T5
Mixed broadleaves
C1
FALLEN TREE



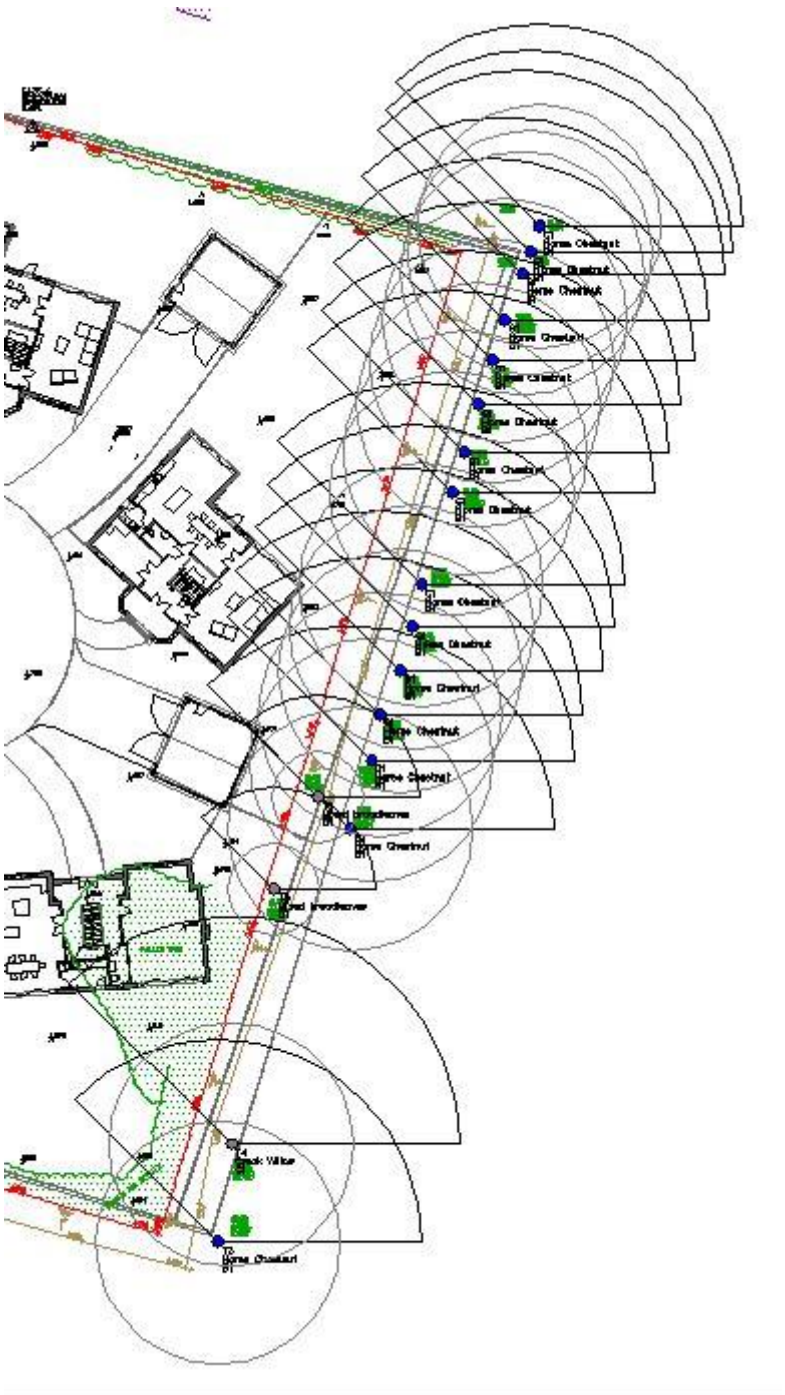
John Wilcockson
Arboricultural Consultant

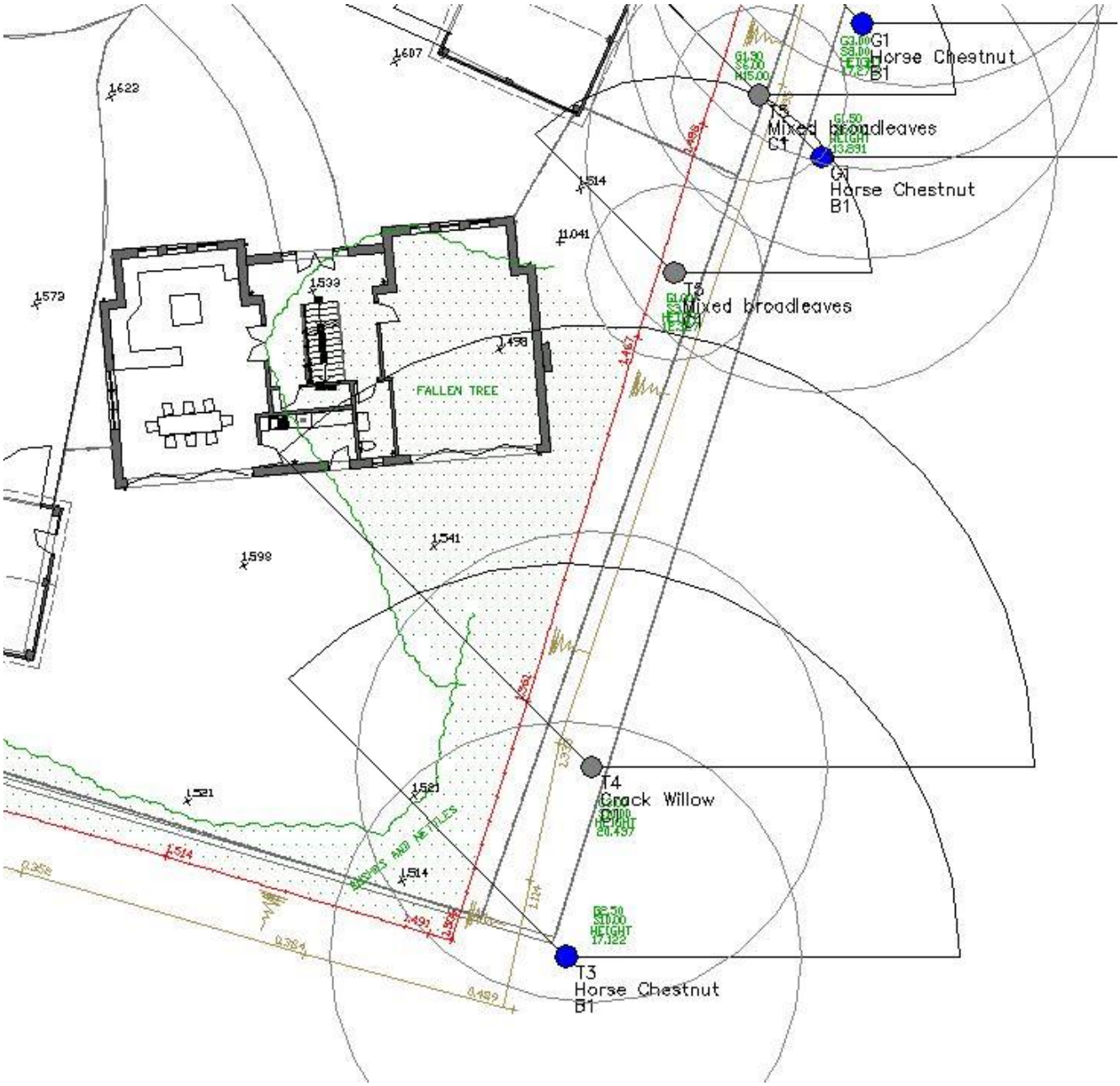


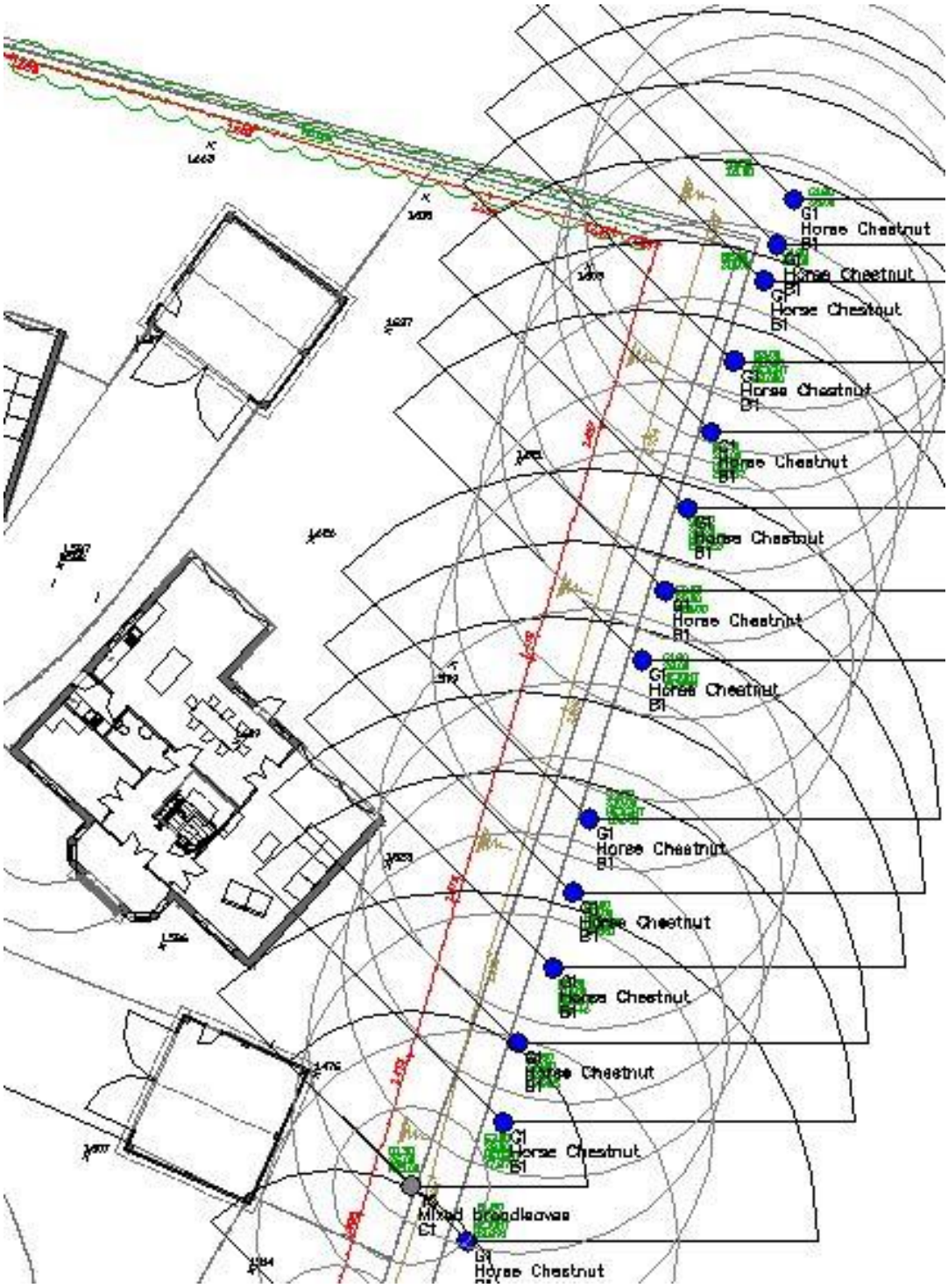
John Wilcockson
Arboricultural Consultant

Appendix 3 Implications

Overview




G1
Horse Chestnut
B1
T5
Mixed broadleaves
C1
G1
Horse Chestnut
B1
T2
Mixed broadleaves
FALLEN TREE
T4
Crack Willow
T3
Horse Chestnut
B1
BRAMBLES AND NETTLES

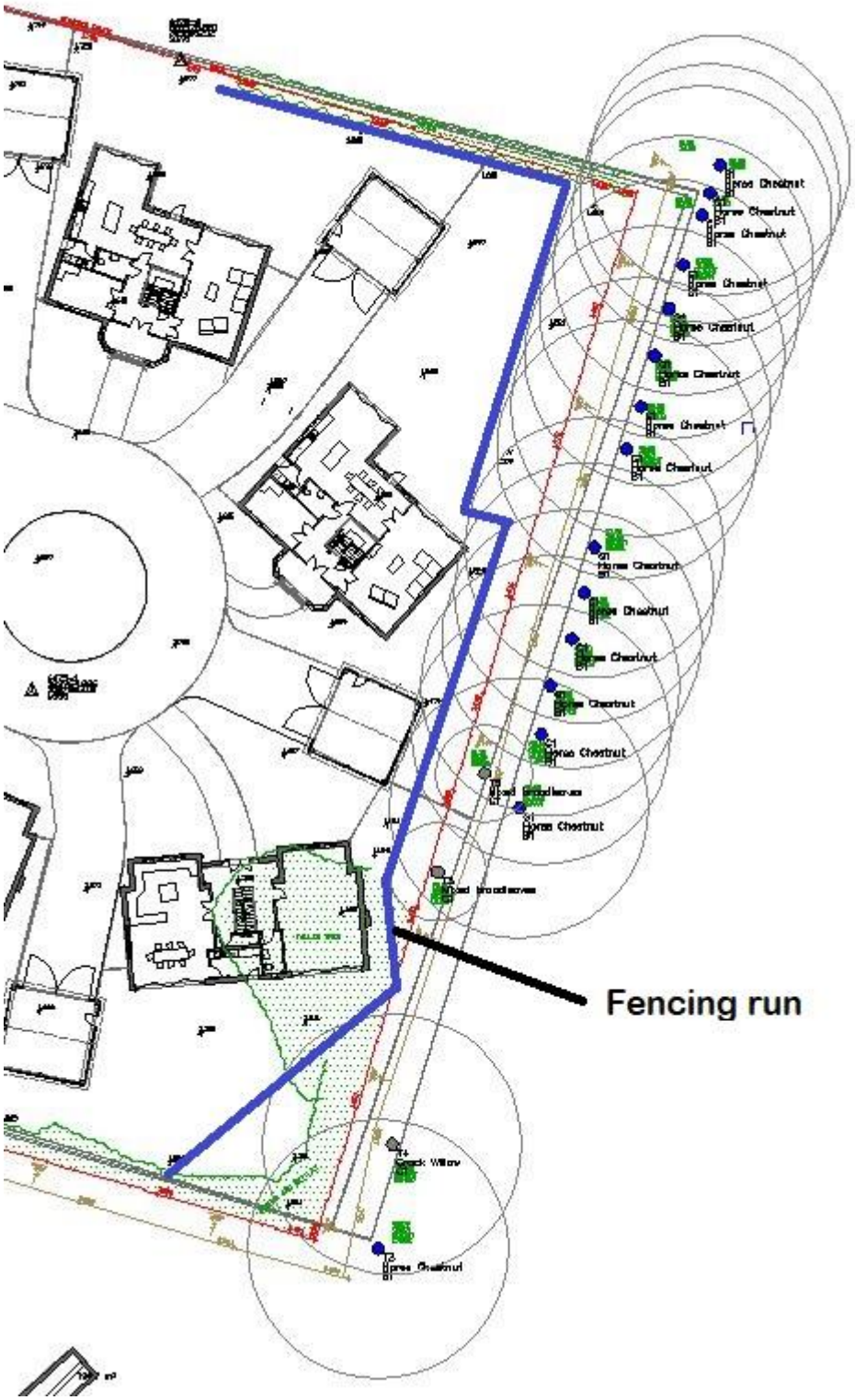

G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
G1
Horse Chestnut
B1
C1
Horse Chestnut
B1
Mixed Broadleaves
C1
G1
Horse Chestnut



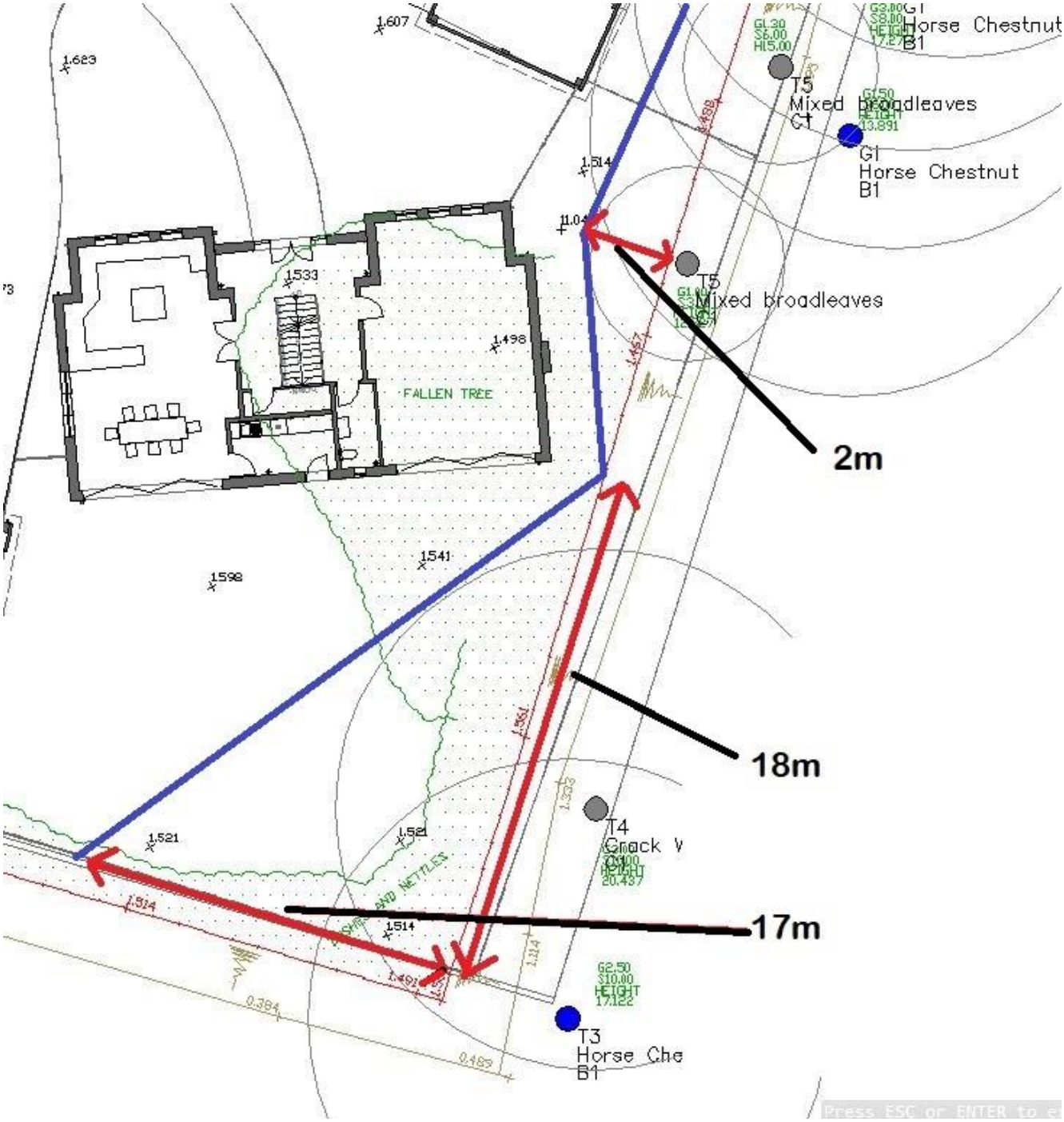
John Wilcockson
Arboricultural Consultant

Appendix 4 Tree Protection

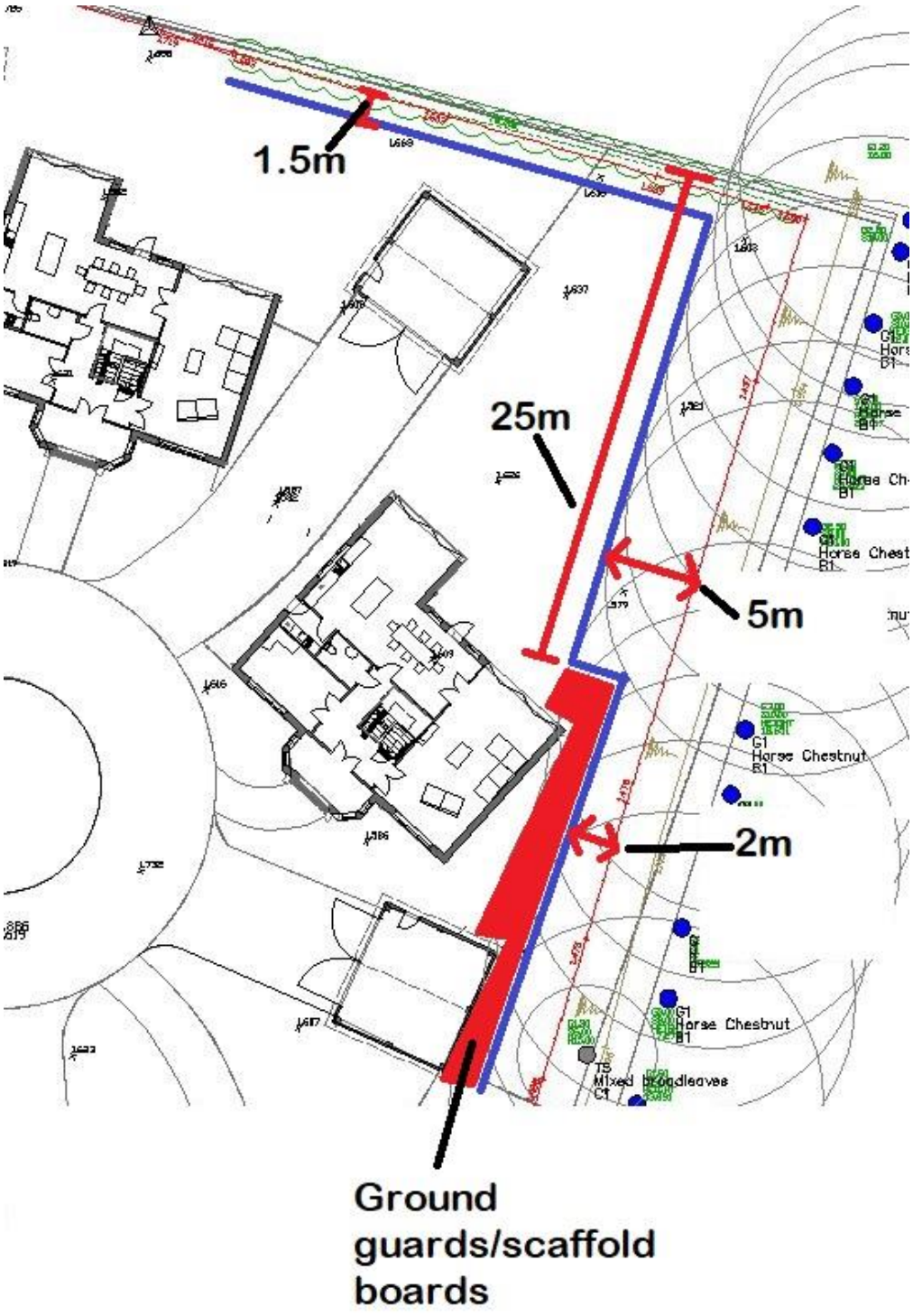
overview



John Wilcockson
Arboricultural Consultant

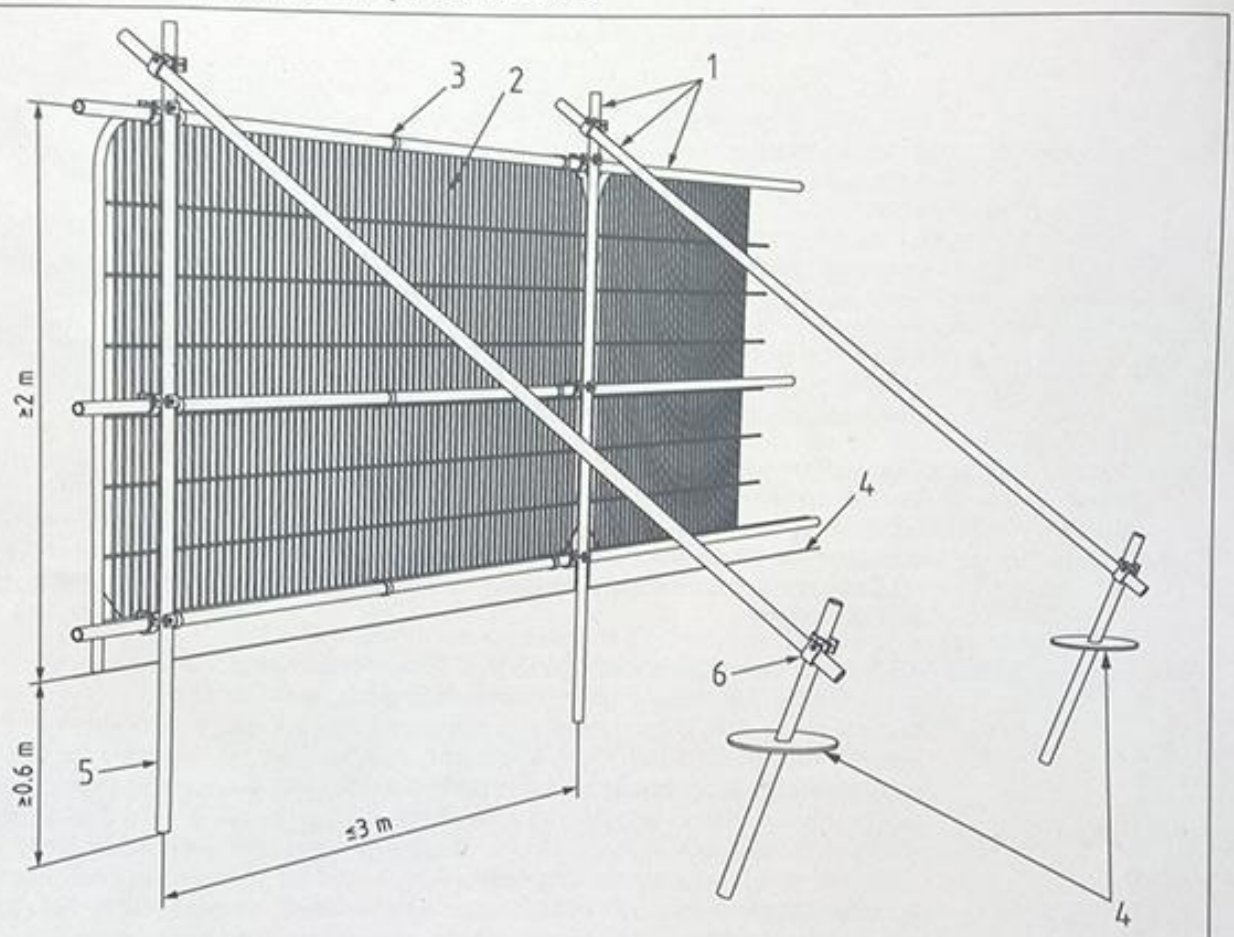


John Wilcockson
Arboricultural Consultant


1.5m
25m
5m
2m
G1
Horse Chestnut
B1
T5
Mixed broadleaves
C1
Ground
guards/scaffold
boards

Appendix 5 Fencing specification

Figure 2 **Default specification for protective barrier**



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Appendix 6 Signage



Appendix 7 Ground guards



Ground-Guards Tree Root Protection

Tree root protection for construction projects

Planning Departments may often need to stipulate that site access roads will not involve any excavation because of the proximity of tree roots on the site. Furthermore, that they will also provide additional ground cushioning when passing over the immediate areas where there are tree roots beneath. This is very important to prevent compaction of the ground, and long-term damage to the soil structure, the tree roots, and ultimately, to the health of the trees themselves.



An effective means of protecting tree roots is to use a double layer of Ground-Guards. Panels with 150mm of wood chips sandwiched in-between which creates a suitably cushioned roadway for this purpose.

The Ground-Guards system is so durable and versatile that whatever your need, the team will be delighted to work with you to provide an effective solution. Please just call our team on 0113 267 6000 for friendly advice on any difficult site conditions that you need assistance with.