

Arboricultural matters relating to trees on land at and adjacent to Pond Yard, Collyweston.

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Tech Cert (Arbor A)

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Ref: Pond Yard.

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1. Instructions

This report was commissioned by Mr & Mrs Young of Pond Yard, Collyweston, with instruction to prepare a report 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 constraints and recommendations in line with BS5837:2012.

A copy of site survey DH15-11-01 Rev A dated 1/05/15 was 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.

The site consists of a detached property with 4 single trees on site, one of which is directly implicated in the proposed development. The remaining 3 trees (2 in front of parking area) are unaffected.

Directly to the south, there are 5 trees on the neighbouring property that are implicated.

On the southern aspect of the site, there is a rear access gravel path at which point, the ground rises and is planted with a mix of largely evergreen shrubs. From here, there is a boundary fence and then an off-site conifer hedge.

The proposal is for a new double garage to the east and extensions to the south & west of the house itself. There are no trees in the location of the proposed access to the garage, only poor quality shrubs.

The initial tree survey is considered to be compliant with BS5837:2012.

All trees implicated on site and those closest on the adjacent property were surveyed and the details are given in Appendix 1 Table 2.

This report addresses the arboricultural issues relating to the site and identifies the arboricultural implications with a view to protecting any retained trees during the construction works by setting out the tree protection methods, construction techniques and working practices that are to be adopted on this site.

If all the guidelines and principles outlined in this report are not adhered to, as with all development sites, there is a risk that the construction activities will result in damage to and potentially the death of the retained trees. Damage to the trees will significantly increase the risk of their health declining and may increase the risk of their complete or partial failure.

The success of the recommendations set out in this report are dependent on the development adhering to the principles set out within, which are to be approved and enforced by the Local Planning Authority (LPA). If the recommendations contained within this document are acceptable to the LPA then it is suggested that they be controlled by standard planning conditions.

3. Tree survey

The tree survey process consisted of a ground-based visual inspection only, and is applied only to the area proposed for development.

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.

The survey data table is in the appendix attached to this report, and trees, their crown spread and the RPA are plotted onto the associated plan, due to the simplicity of the site, the trees have not been tagged.

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.

Detail of the tree survey is given in Appendix 1, Table 2.

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. Limitations

The diameter for the hedge has been estimated and averaged at 100mm.

5. Legal Constraints

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

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.

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 LPA has not been made, as such it is understood that the site is set within Collyweston Conservation Area.

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.

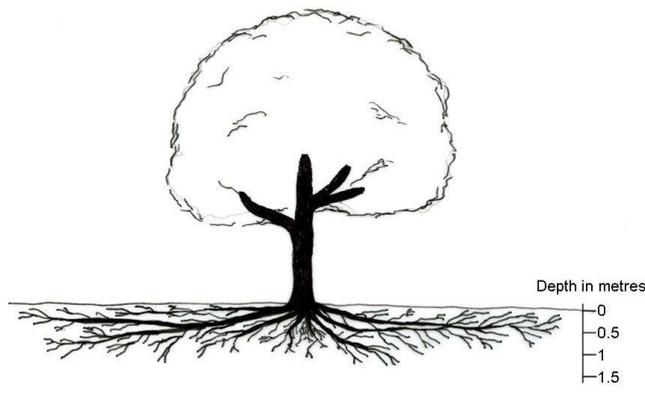
6. Arboricultural considerations in relation to development.

6.1. 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 form of a tree's root system.)

The following diagram represents the typical rooting pattern of a tree. Note that 90% of the tree's 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.

6.2. 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.

6.3. 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 vigour, 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.

7. Tree survey findings

A total of 7 individual trees were assessed along with a single hedge.

The 2 trees on site (T1 & T7) have no public visual amenity value, the Magnolia can be seen from Back Lane, but is not considered to be part of the landscape.

The off-site trees are considered to be part of the visual landscape in that location as viewed from the same point.

The 2 trees to front boundary near the parking area have not been assessed as they are not implicated by the proposals.

T1 has been categorised as C1 and is a twin stemmed semi-mature Apple with a congested crown and minor decay pockets at old pruning wounds.

T2 has been categorised as B1 and is an early mature Norway Maple in good condition which becomes multi-stemmed at 2m. There are historic pruning wounds and minor deadwood but no visible faults of note.

T3 has been categorised as C1 and is a young Oak which has a slight lean to north, the tree is partially suppressed by T1 Norway Maple and as such, has developed an asymmetrical crown. There were no visible defects.

T4 & T5 have been categorised as C1 and are both multi-stemmed Hazel coppice stools, the diameters have been averaged and estimated to provide a reasonable RPA constraint.

T6 has been categorised as C1 and is an early mature Cherry which is also suppressed, there is a weak union at 1m with included bark.

T7 has been categorised as C1 and is a semi-mature multi-stemmed Magnolia with included unions, historic pruning wounds and part occluded branch wounds.

8. Tree Constraints

The root protection areas have been plotted on the site plan at Appendix 2.

Only T1 Apple and T2 Norway Maple form constraints in terms of their RPAs.

The centre of the hedge is approximately 2m from the proposed build and 1.3m from the boundary. The RPA whilst notional is still a consideration.

There are no constraints in terms of shade pattern from these T3-6 as the building in that location is to remain as is and the only construction there is the proposed garage.

9. Arboricultural Implications

T1 will need to be removed to facilitate the build of the garage, the RPAs of T3, T4 & T5 are not implicated.

The RPA of T2 is not directly implicated by the extension however there is a 10% incursion of the RPA in terms of alterations to the shrub edge.

In order for the southern extension to be built, those shrubs directly within the build zone will be removed and the levels altered to physically accommodate the structure which will be piled at each corner. There will be no soil loss within the RPA of T2 itself, as such, the only concerns here are compaction to the soil within the RPA.

Given that the remainder of the RPA is unaffected and under grass, this incursion is not seen as a constraint provided the Tree Protection detail and Arboricultural Method Statement are followed.

The shade pattern will not be an issue as the fenestrations are west facing.

There are no implications on the RPAs of T3-T6.

T7 will be unaffected by the proposal.

It is considered that the notional hedge RPA does not form a constraint given that there is still a 2m off-set between the hedge centre and the proposed construction. It is plausible that at 1.3m – boundary fence area, there will be roots, but there will be no changes to the soil or levels at that point. As such, the only concerns here are also compaction to the soil within the RPA.

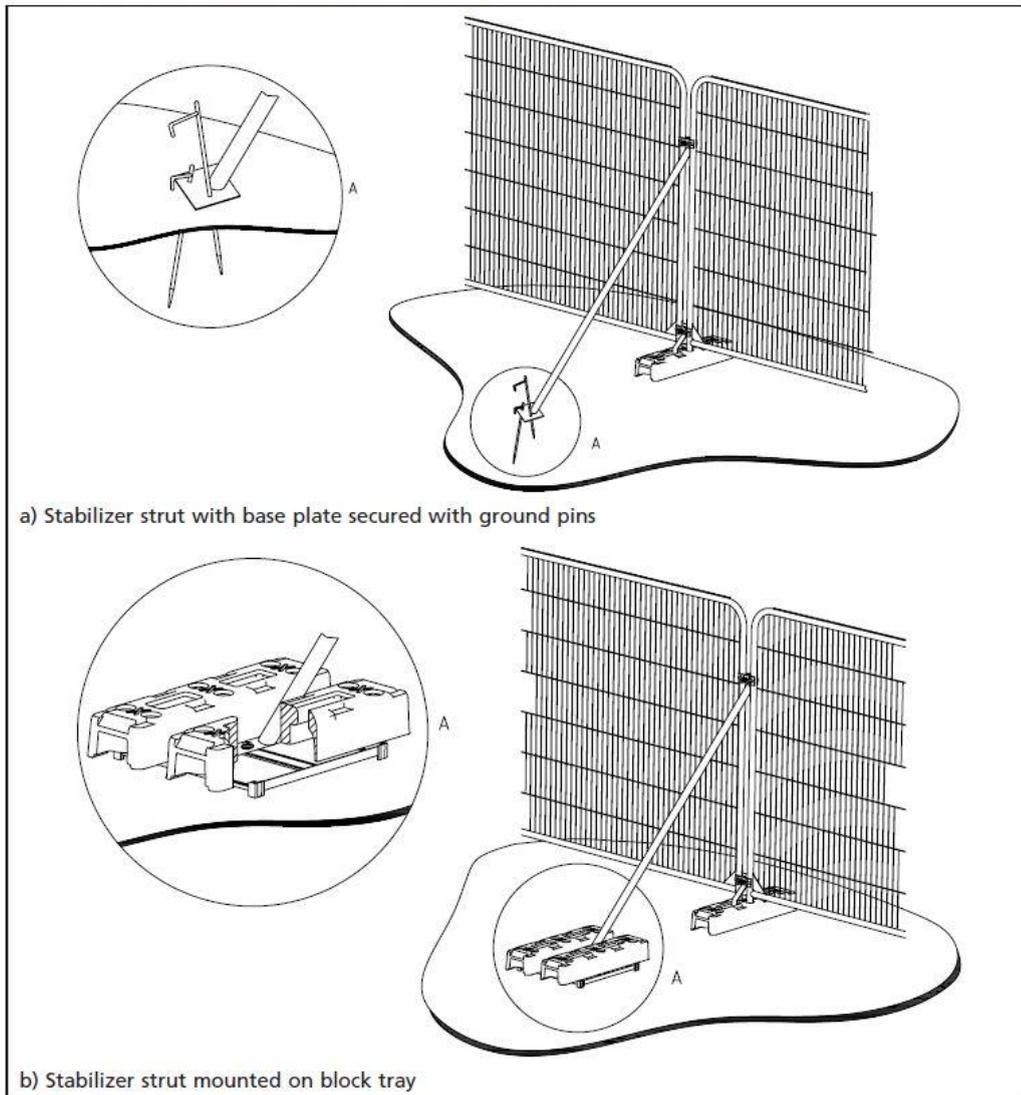
Any roots in that area will be also be protected as per T2.

10. Tree Protection and Arb Method Statement.

All materials required for the extension to be delivered and stored west of the construction zones prior to any other works commencing.

In light of the available space, Heras fencing as per Figure 3 below of BS5837:2012 will then be installed along the southern boundary to protect the off-site hedge and tree RPAs.

Figure 3 Examples of above-ground stabilizing systems



This to extend from the end of the conifer hedge to the west to corner north of T6 and will remain in place until construction is complete.

Once the shrubs have been removed and the level changes completed to facilitate construction, ground protection measures to prevent compaction will be by way of scaffold boards laid on top of 100mm of wood chip. This to be installed to the extent of the level changes i.e. from west to furthest point past the construction area. These boards to remain in situ until the construction phase is complete.

Construction will be carried out from the west and east, the boards only to be used for pedestrian use and not for storage or as a work platform.

Every effort should be taken to protect a maximum possible area of the root system.

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

11. Construction sequence.

1. Deliver all materials as stated in Section 10.
2. Install protective fencing as per Section 10.
3. Remove T1 and the shrubs along the bank.
4. Carry out changes to levels.
5. Lay down wood chip and boards as per Section 10.

12 Conclusion

Subject to the recommendations in this report being followed, it is considered that there should be little if any long-term, detrimental effect on the retained/off-site trees.



J Wilcockson

11/11/16

Appendix 1: Tree Inspection/Survey Results

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

Tree Ref.	Tagged number and corresponding number on plan. T1 etc, NT* due to inaccessibility	
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
	SM	Semi 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
Condition: Physiological and Structural	Veteran – Older than the typical age range of the species and has high conservation and amenity value	
	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
Preliminary Recommendations	In addition specific diseases, defects or faults are described.	
	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 m ² , 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.			
DW	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. An '#' adjacent to a figure within the table indicates an estimated measurement.

Table 2: TREE SURVEY SCHEDULE incl. BS 5837 retention categories and Root Protection Areas

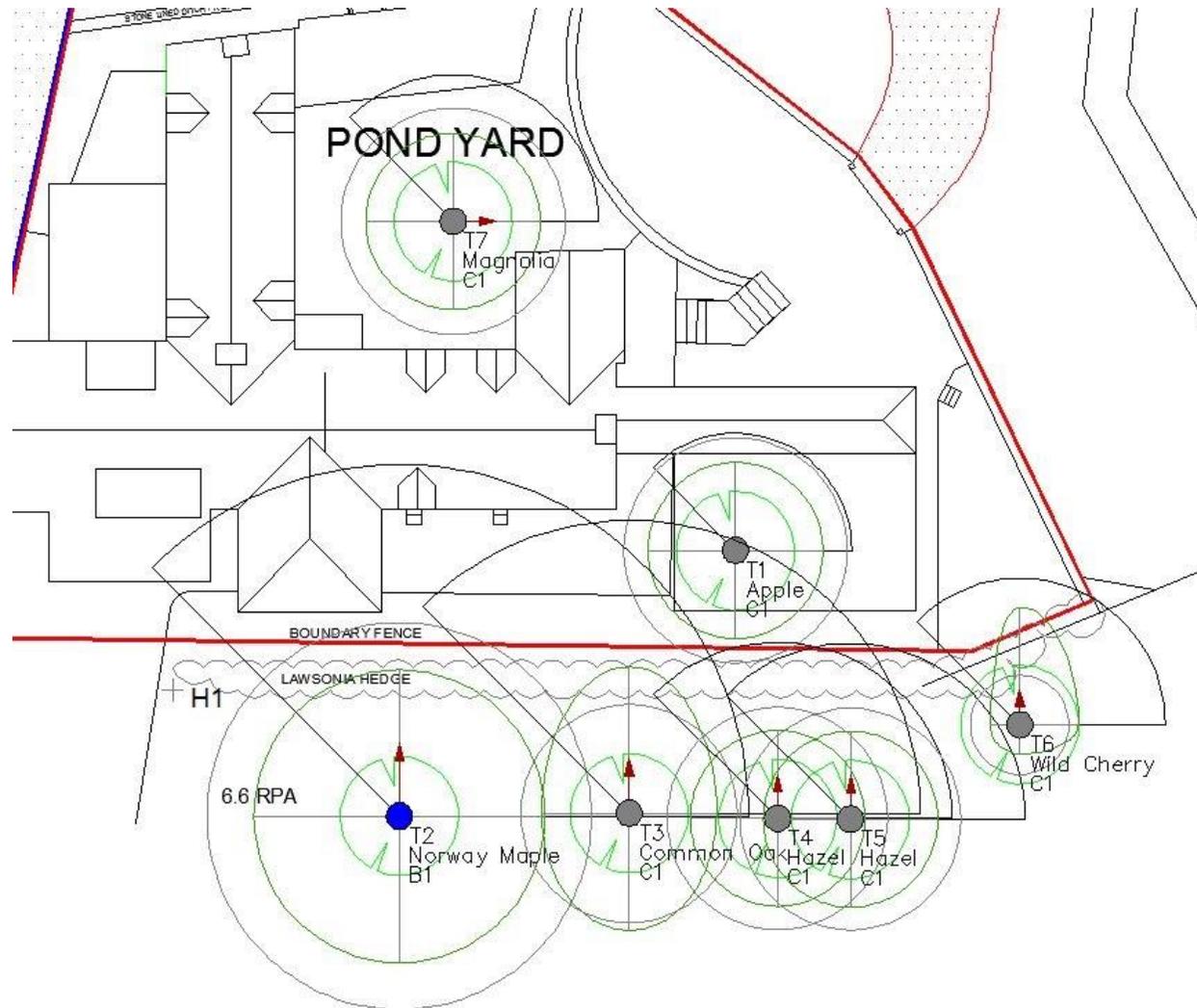
Client: Mr & Mrs Young Site: Pond Yard, Collyweston

Surveyor: John Wilcockson Date of Survey: 31/11/16 Weather: Damp, cold.

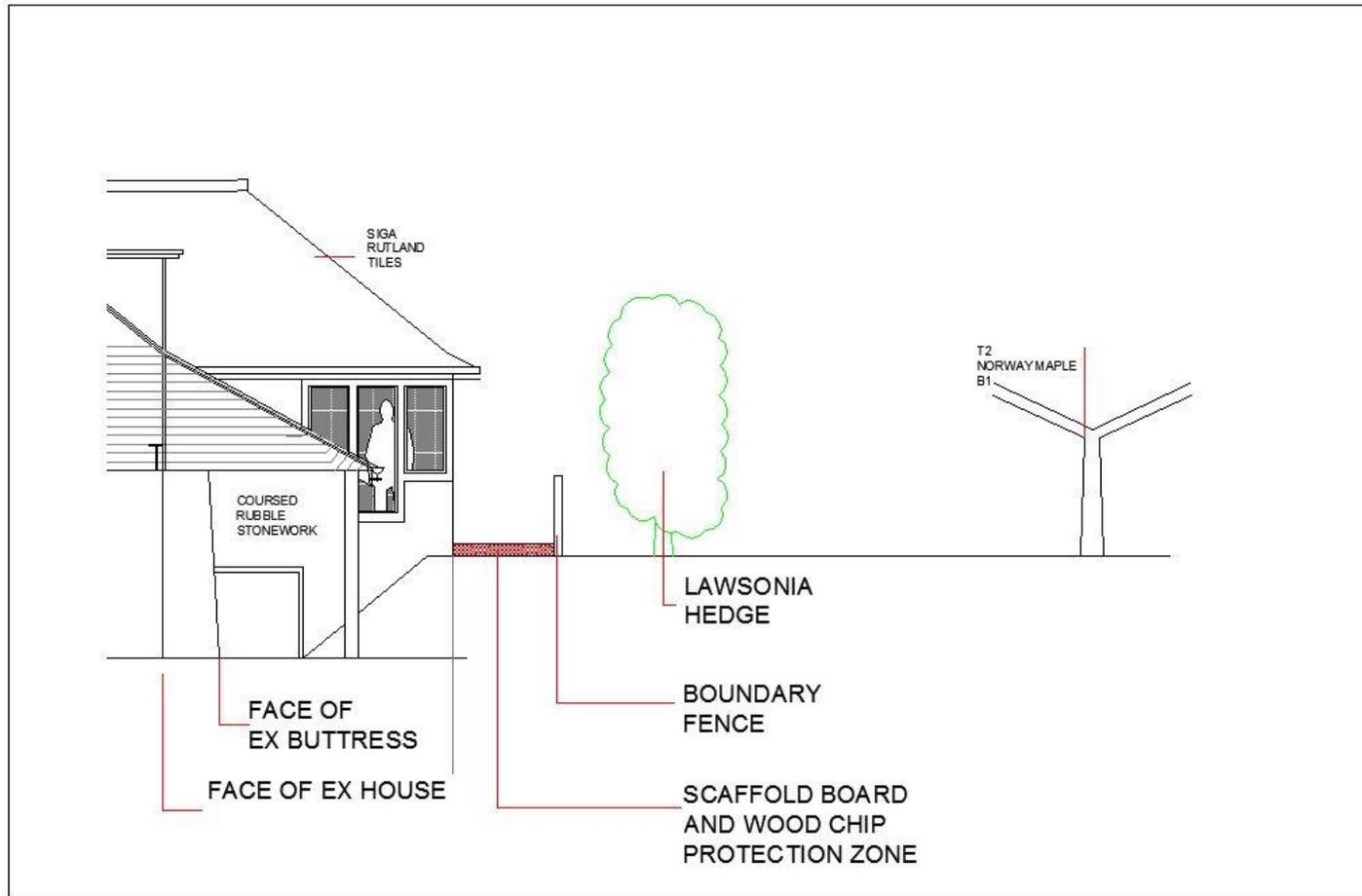
Tree Ref	Species	Age Class	BS Category	Ø (mm)	Stem count	Height (m)	Lowest crown height.	1 st sig branch & direction	SULE	N	E	S	W	Condition: Physiological and Structural	Preliminary recommendations	RPA radius m
T1	Apple <i>Malus sp</i>	M	C1	250,200	2	4	1	1W	40+	3	3	3	3	Fair, minor ivy, congested crown, minor deadwood	Fell	3.8
H1	Leyland Cypress X <i>Cupressocyparis leylandii</i>	SM	C1	350	1	3	1	0N	40+	2	2	2	2	Fair, Cypress hedge maintained at approximately 3m.	Off-site	-
T2	Norway Maple <i>Acer platanoides</i>	EM	B1	550	1	12	1.5	2N	40+	5	5	5	5	Good, Multi-stemmed at 2m, historic pruning wounds, minor deadwood.	Off-site	6.6
T3	Common Oak <i>Quercus robur</i>	Y	C1	310	1	10	2.5	2N	40+	5	3	4	3	Fair, asymmetrical crown, slight lean to north suppressed by Norway maple	Off-site	3.7

Tree Ref	Species	Age Class	BS Category	Ø (mm)	Stem count	Height (m)	Lowest crown height.	1 st sig branch & direction	SULE	N	E	S	W	Condition: Physiological and Structural	Preliminary recommendations	RPA radius m
4	Hazel <i>Corylus avellana</i>	SM	C1	100,100,100,100, 100,100,100,100, 100,100	10	6	0	-	40+	3	3	3	3	Fair, coppice stool	Off-site	3.7
5	Hazel <i>Corylus avellana</i>	SM	C1	100,100,100,100, 100,100,100,100, 100,100	10	6	0	-	40+	3	3	3	3	Fair, coppice stool	Off-site	3.7
6	Wild Cherry <i>Prunus avium</i>	SM	C1	100,100	2	5	3	2N	40+	4	2	1	1	Fair, weak union at 1m, included bark, suppressed.	Off-site	1.7
7	Magnolia <i>Magnolia sp</i>	SM	C1	170,130,140,110, 160	5	5	3	1.2E	40+	3	3	3	3	Fair, included unions, historic pruning wounds, part occluded branch wounds	No works required.	3.8

Appendix 2 – Constraints/implications Plan (Not to scale)



Appendix 3 – anti-compaction detail (Heras fencing to be located inside boundary fence).



SECTION THROUGH RPA ZONE

