

Tree Survey Report

12 Cheshire Lane, Witham St Hughes

ATS-23-002



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We hope that this report provides all the necessary information, but should any further advice be needed please do not hesitate to contact us.

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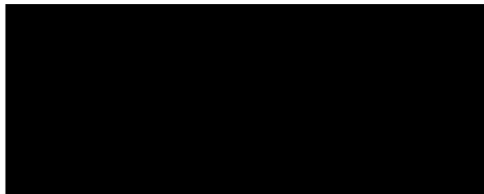
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James Newbould (Director) Dip Arb L4



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Introduction

1. Qualifications and experience

We have based this report on our site observations and any information provided. We have come to our conclusions in the light of our experience.

James Newbould – Director (Arborglyph Tree Services Ltd)

Beginning in 2012, James transitioned from a career in archaeological consultancy and project management into arboriculture. In June 2014, following completion of his retraining, James set up Arborglyph Tree Services. For the past 8 years he has specialised in undertaking high quality tree work for private and commercial clients in Lincoln and the surrounding villages.

James combines his extensive experience in consultancy and project management with his knowledge and experience of arboriculture in order to provide his clients with advice that balances their requirements with those of the trees. James also holds a Level 4 Diploma in Arboriculture (L4 Dip Arb).

Trees are immensely important to our wellbeing and James is passionate about ensuring that we can live alongside them safely and respectfully.

2. Instruction and brief

Arborglyph Tree Services Ltd has been commissioned by Mr Robert Hall (henceforth referred to as the client) to prepare an Arboricultural Survey to inform the planning and design of a proposed development at the above address. The information provided by this survey is intended to aid in the design of the proposed development by identifying the design constraints imposed by trees upon the development site.

The resulting report includes the following information:

- A tree survey, undertaken in accordance with *British Standard 5837:2012 Trees in relation to design, demolition and construction - Recommendations*.
- A Plan of the Tree Constraints which highlights the potential development limitations the trees pose on site.
- An Arboricultural Impact Assessment which evaluates any potential impact the proposal may have on surrounding trees.

This report is based on site observations and information provided. Conclusions have been made in light of the surveyor's experience and qualifications. A list of experience and qualifications in arboriculture are detailed above. The client may

choose to accept or disregard the recommendations made in this report or seek additional advice.

This report is only concerned with trees in relation to construction. This report makes no attempt to provide a full safety inspection of the trees surveyed. It should not be seen as an alternative for a Tree Hazard Assessment which is specific to minimising the risk and liability associated with trees.

Climatic conditions including storms, drought and temperature-related factors can cause damage and failure in apparently healthy trees. It should be remembered that all trees do pose a risk and whilst every effort has been made to detect any major defects in inspected trees, no guarantee can be given as to their safety. Although the risk should be managed to an acceptable level, no tree can always be guaranteed as safe.

This report is based on Visual Tree Assessment (VTA) methodology, as devised by Mattheck (1991). VTA is a ground level visual assessment of a tree, which is carried out to identify obvious mechanical defects, signs of ill health, potential mechanical failure and the suitability of a tree to a site. The survey is compiled in accordance with *British Standard 5837:2012 Trees in relation to design, demolition and construction - Recommendations* with Root Protection Areas (RPA's) based upon section 4.6 of that document.

3. Site visit

This report is only concerned with the prominent trees within and adjacent to the site with the potential to be affected by any proposed development. It takes no account of any trees outside this remit or any building structural issues.

The survey was undertaken by James Newbould on 17th February 2023.

The weather conditions were mainly dry with minor cloud cover and sunny spells. Temperature was around 8 degrees Celsius.

Measurements were calculated using the necessary instruments or estimated where access could not be gained. No climbing inspections or decay detection analysis was undertaken. The observations made are based upon information that was available at the time of the survey. A glossary of relevant arboricultural terms can be found in Appendix A.

The tree survey data was recorded, and the trees were graded using Table 1 of BS5837. This information has been included within the appendices at Appendix B. The tree survey data can be found in Appendix C.

This survey should be read in conjunction with the Plan of the Tree Constraints (PoTC - Appendix D) which have been prepared by overlaying tree survey data onto an Ordnance Survey base map with the footprint of the proposed development.

Appendix D comprises shows Root Protection Areas (RPAs) in green and crown spreads in blue. Tree shading areas are indicated by dotted lines.

4. Mapping

Tree locations are based on architectural drawings provided by the client. The author has relied on the accuracy of the drawing in the production of this report.

No topographical survey has been undertaken on the site. All relevant trees have been plotted using a combination of land features, manual measurements, laser measurements and GPS as required. It is estimated that the accuracy is within 1-2m.

5. Site Description

The site is the rear garden of a residential dwelling situated on the southern side of Cheshire Lane. The garden backs onto a section of mixed woodland consisting mainly of *Quercus robur*. The site is on flat ground.

To the eastern part of the site is bounded by a fence and private road. The west of the site is boded by a residential property.

6. Tree Status

The mixed woodland to the immediate south of the site is protected by TPO status - Ref: N745, Witham St Hughs 2017, referenced as area W1 on the ToP schedule document.

7. Soil Assessment

No soil testing was undertaken, and no soil information was provided for the author. From studying the British Geological Survey 'Geology of Britain Viewer' the underlying geology is recorded as mudstone of the Scunthorpe formation - consisting of limestone interbedded with mudstone.

The precise soil type can only be confirmed with further soil investigation/analysis although, given the apparently mixed nature of the geology there is potential for the subsoil to consist of shrinkable clay.

8. Design

The proposed development comprises a double storey side extension to the east of the existing house and a single storey extension projecting southward into the garden. The proposed development is shown in Appendix D with the proposed building footprint in red and a proposed footpath in yellow.

Tree Quality Assessment

As highlighted in Appendix C below, the tree survey included 7x individual trees within the vicinity of the proposed development. Of these 6x trees were identified as a retention category 'B' and 1x tree was identified as retention category 'C'.

Category	Category description	No. Trees present
A	Trees of high quality, with life expectancy in excess of 40 years	0
B	Trees of moderate quality, with life expectancy in excess of 20 years	6
C	Trees of low quality with life expectancy in excess of 10 years or young trees	1
U	Seriously defective trees that cannot be retained in present context for longer than 10 years	0
Total		7

Generally, the Local Planning Authority is likely to accept the removal of trees in a poor condition or those with a minimal, safe, useful life expectancy. This usually includes category 'U' and 'C' trees. This presumption is also viewed reasonable where it accords with accepted arboricultural objectives.

Arboricultural Impact Assessment

The following section evaluates the proposed design layout in relation to trees on and off- site. Any tree and design conflicts are highlighted, and possible remedial action recommended. The assessment is based on the surveyor's findings and drawings provided by the project landscape architect.

The proposed development comprises a double storey side extension to the east of the existing house and a single storey extension projecting southward into the garden. The proposed development is shown in Appendix D with the proposed building footprint in red and a proposed footpath in yellow.

9. Trees to be removed to accommodate the proposal

T1 (see image below) should be removed to accommodate the proposed development. T1 is a single self-set *Prunus avium* located close to the southern fenced boundary. T1 is in its early life stage and will not have been part of the original woodland which consists of mature trees (principally oak and pine). T1 is considered to be in retention category C1 due to its age and co-dominant stems

showing an included bark union at the base which has the potential to lead to structural failure in the future.

It is not clear whether T1 is included in the blanket TPO coverage of Area W1 of N745, Witham St Hughs 2017. In any case, permission will need to be sought from NKDC to remove T1. A replacement tree will be planted within the woodland to mitigate the loss of T1. No other trees are required to be removed.



10. Below ground constraints

The area of roots that need to be protected around a tree to try to ensure it does not suffer damage during the construction process is called the Root Protection Area (RPA).

As recommended in BS5837 we have plotted the RPAs (in green) onto the attached Tree Constraints Plan (Appendix D) taking full account of the surrounding topographical factors, tree condition and the overall likelihood of root disposition.

The proposed development does not directly impact (via below ground excavation) any of the RPAs identified as they are outside the proposed development footprint.

To protect the root systems of T4 and T6, ground protection mats (magenta area in Appendix D) should be installed over the ground surface where the RPAs cross into the property boundary. These will help protect them from compaction caused by heavy vehicular traffic associated with the demolition and construction processes.

To eliminate the risk of concrete poisoning, the holes will be lined prior to concrete pouring with a watertight membrane.

11. Above ground constraints

Minor facilitation pruning may be required on T4 and T6 where they overhang the souther property boundary in order to prevent damage to the tree during construction from scaffolding and machinery movement. If pruning is required these works would be of a minor nature only requiring the shortening/removal of branches where cuts will not exceed a diameter of 75mm and would conform with BS3998:2010 best practice.

12. Material storage

No materials will be stored within the RPAs of any tree shown in Appendix D. Attention is drawn to T7 at the front of the property, the RPA of which is shown as being constrained by the adjacent footpath and road to a grassed verge. No materials or vehicles will be stored or parked on this grassed area during construction.

13. Services

No new services or soak-a-ways are to be sited or constructed within the RPA of any tree. Should it become necessary these must be installed using techniques and methods described at section 4.1 of the current edition of the National Joint Utilities Group (NJUG) Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (www.njug.org.uk) or if this is not practicable, trenches are to be opened by compressed air excavation tools and not mechanically dug.

Conclusion

From the tree survey findings, comments and observations, only T1 will require removal. There is some risk of soil compaction to the extremities of the RPAs of T4, T6 as well as that of T7. However, this can be reduced with the use of adequate ground protection in the case of T4 and T6 and avoided by exclusion from storage of materials and parking within the RPA of T7 (grassed verge).

The protection of trees, their subsequent health and future potential is dependent upon all persons operating within the site. Communications are vitally important to ensure that all parties understand the reason for tree protection and its continued existence. Providing all necessary tree protection works are undertaken, retained trees and development alike will satisfactorily coexist.

It is hoped that this report and recommendations provides all necessary information, however, should there be any queries, or should clarification of any points be required, please contact the report author.

James Newbould, L4 Dip Arb

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Appendix A - Glossary of Arboricultural Terms

Banana Cracks – These usually form on the underside of leaning trees and are vertical. These can lead to colonisation by decay fungi.

Bleeding - Flow of sap from wounds and/or other injuries.

Bole - The central stem of the tree.

Bough - The gradual curve of a branch or stem

Bracket - Fruiting or spore producing body of wood decay fungi, forming on the external surface of the stem or trunk.

Branch - A secondary shoot or stem arising from the main stem of trunk.

Branch Bark Ridge - A ridge of bark in a branch crotch that marks where branch and trunk tissue meet and often extends down the trunk.

Branch Collar - Wood that forms around a branch attachment, frequently more pronounced below the branch. The branch collar is used to identify the correct location of all thinning cuts.

Brown Rot - Form of decay where cellulose is digested. The result of brown rot is brittle wood with no tensile strength.

Buttress - Support branch, stem, or root; usually associated with exaggerated growth.

Cavity - An open wound, characterised by the presence of decay and resulting in a hollow structure.

Callus - Undifferentiated tissue initially formed by the cambium around and over a wound.

CODIT – Compartmentalisation Of Decay In Trees is the term used to describe how trees deal with decay.

Co-dominant - A situation where a tree has two or more stems which are of equal diameter and relative amounts of leaf area. Trees with co-dominant primary scaffolding stems are inherently weaker than stems, which are of unequal diameter and size.

Compression Union – This is where the wood fibres at a branch or stem union have not knitted together. This can result in union failure due to the continued radial growth of the tree pushing the union apart.

Compression Wood - Type of reaction wood that develops on the underside of branches and leaning trunks in coniferous trees; tends to maintain branch angle of growth or straighten the trunk.

Coppicing - The cutting down of a tree within 300mm (12in) of the ground at regular intervals, traditionally applied to certain species such as Hazel and Sweet Chestnut to provide stakes etc.

Crown - The area of the tree that bares foliage.

Crown Lifting – the raising of clearance between the ground and the lowest branch of a tree.

Crown spread – the distance the crown extends from the main stem at cardinal points i.e. N, E, S, W.

Diameter Breast Height (DBH) - Diameter at Breast Height (measured at 1.5m Ground level). DBH is required for determining tree value. Multi stemmed trees require diameters for each stem. In addition, the stem diameter must be factored by the relative crown ratio of the stem.

Deadwood – woody tissue that is no longer functional, usually branches and graded by size; Minor – diameter less than 50mm and Major – diameter greater than 50mm. Decay- The process of degradation of woody tissues by fungi and bacteria through decomposition of cellulose and lignin.

Decline - When a tree exhibits signs of a lack of vitality such as reduced leaf size, colour or density.

Defect - A fault or weakness in a tree support system.

Ears - This is the term given to the type of reaction wood that occurs either side of a compression union. These help to strengthen compression unions by knitting together wood fibres either side of the union.

Epicormic Growth - Shoot that arises from latent or adventitious buds that occur on stems and branches and on suckers produced from the base of trees.

Fibre Buckling - Visible enlargement of tissue on the down side of a tree stem. Represents the reaction of a stem to a heavy loading. It is normally safe except when coupled with bark defoliation from the top (tensile) part of the loaded stem.

Fungi - Simple plants that lack a photosynthetic pigment. The individual cells have a nucleus surrounded by a membrane, and they may be linked together in long filaments called hyphae. The fruit of which (mushrooms) are often referred to as 'Fruiting Body'.

Gall - A localised swelling of branch or stem generally caused by fungi, bacteria, insects or a physiological disorder.

Hazard Beam – This is where the end weight of a branch is too much and partially failed, causing a horizontal split to form through the middle of a branch.

Included Bark - Included bark occurs when bark is included into the attachment between two stems, preventing the joining of wood tissue in the area between the stems. Included bark attachments always have an extremely narrow angle between the stems, resembling the letter “V” (rather than the letter “U” or “L” typical in strong attachments). As stems having included bark increase in size, pressure is exerted from the stem expansion and a crack often develops in the crotch between the stems. Included bark attachments have a higher potential for failure in later years.

Lateral - A branch or twig growing from a parent branch or stem in a horizontal direction from the parent stem.

Leader - A dominant upright stem, usually the main trunk.

Lean - Departure from vertical of the stem, beginning at or near the base of the trunk.

Limb - Same as branch, but usually larger and more prominent.

Physiological Condition - an overall assessment of a tree's health graded Good – no significant health issues, Fair – minor symptoms of ill health and Poor – significant ill health.

Pollard - Pruning technique by which young trees or branches are initially headed and then re-headed on an annual basis without disturbing the callus knuckle.

Reduction - Pruning to decrease height or spread on entire tree or one section; also referred to as reduction or reduced pruning.

Reaction Wood - Specialised secondary xylem that develops in response to lean or similar mechanical stress, to restore the stem to the vertical. Occurs as compression wood in conifers and tension wood in angiosperms.

Retrenchment – This is where the tree turns the upper most crown into deadwood which often looks like a stag's antlers. This can happen for a number of reasons.

Retrenchment pruning - A form of reduction intended to encourage development of lower shoots and emulate the natural process of tree ageing.

Root - An organ of a tree that serves to maintain mechanical support, to provide water and essential elements from the soil through absorption, and to store energy reserves.

Root Collar - The junction between the root of a plant and its stem, often indicated by the trunk flare.

Sapwood – The outer portion of the wood that has living cells and transports water and nutrients and stores carbohydrates.

Scaffold - A large limb that is or will be part of the permanent branch structure of a tree.

Simultaneous Rot – This is where both Brown and White rot occurs at the same time, eventually this results in ceramic failure of the tree.

Species - A group of plants that resemble each other closely and that interbreed freely. Displayed as common name first and taxonomic name in brackets.

Stem - A woody structure bearing foliage and buds that gives rise to other stems.

Structural Condition - An overall assessment of a trees structural condition graded; Good – minimal defect, Fair – defects of low significance and Poor – major defects or dead.

Suckers - Adventitious stems arising from the lower trunk or roots.

Tension Wood - Type of reaction wood in angiosperms that forms on the upper side of branch and stems, acting to pull the member back to a vertical orientation or a genetically programmed angle of growth.

Tension Union - This is where the wood fibres at the union have knitted well and form a strong U-shaped union.

Torsional Twist - Often caused by prevailing winds effect on a growing tree over time. The main stem appears twisted, this can sometimes be a species characteristic.

Union - The junction between stem and branch or between stems.

White Rot - A form of decay where the lignin in the cells is broken down leaving white spongy wood tissue with no compressive strength.

Wound - An opening that is created when the tree's protective bark covering is penetrated, cut, or removed, injuring or destroying tissue. Pruning a live branch creates a wound, even when the cut is properly made.

Wound-wood - Differentiated woody tissue that forms after initial callus has formed around margins of a wound. Wounds are closed primarily by wound-wood.

Appendix B

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Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	<ul style="list-style-type: none"> Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <p><i>NOTE</i> Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</p>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

BRITISH STANDARD

BS 5837:2012

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Appendix C - Tree Survey Data

Tree No.	Species		Height (m)	Ultimate height (m)	Stem diameter at 1.5m (mm)	RPA (m) - 12x Stem diameter	Crown spread (m)				Height and direction of 1st limb	Physiological condition	Structural condition	Life stage	Observations	Remaining contribution	Category
	Common Name	Taxonomic name					N	E	S	W							
1	Cherry	<i>Prunus avium</i>	8	14	113	1.4	3	3.5	2.8	2.6	1.75 W	Good	Fair	Young	Twin co-dominant stems, compression union at base, natural bracing.	>15	C1
2	English Oak	<i>Quercus robur</i>	21	23	551	6.6	1.4	5	4.9	2.4	2.4 E	Good	Good	Mature	Crown bias E, Major DW, Historic pruning wounds.	>20	B2
3	English Oak	<i>Quercus robur</i>	22	24	605	7.3	7.4	6.3	4.2	3.6	7.6 NE	Good	Good	Mature	Major DW throughout, Historic pruning wounds.	>20	B2
4	English Oak	<i>Quercus robur</i>	22	24	630	7.6	10.2	3.8	6.5	4.9	2.0 N	Good	Good	Mature	Crown bias N, Major DW throughout, Historic pruning wounds, Mechanical damage 1.5m NE. Facilitation pruning?	>20	B2
5	English Oak	<i>Quercus robur</i>	19	21	640	7.7	5	4.7	4.2	4.9	3.7 SE	Fair	Fair	Mature	Major DW throughout, Historic pruning wounds.	>20	B2
6	English Oak	<i>Quercus robur</i>	20	22	653	7.8	9.9	4.3	1.6	6.6	2.1 N	Good	Fair	Mature	Crown bias N, Leans to N, Major DW throughout, Historic pruning wounds. Facilitation pruning?	>20	B2
7	Crab apple	<i>Malus sylvestris</i>	7	8	248	3.0	3.2	3.5	2.9	3.5	1.9 W	Fair	Fair	Mature	Basal epicormic, Significant water growth throughout, Dense crown, Crossing and rubbing branches, Historic pruning wounds, Minor DW	>10	B1

Appendix D - Tree Constraints Plan

