Tree Condition Report

& Management Recommendations

at

Keresforth House
Dark Lane
Barnsley
S70 6RZ

Dated
3rd March 2021

CROWN Consultants

Tree consultants throughout England and Wales

Contents

1. Introduction

1.1. Instructions and References

1.1.1. I am instructed by Emma Hampton of Keresforth House Management Company to conduct an Arboricultural Survey at Keresforth House and produce my findings in a report.

1.1.2. I have sketched the prominent features of the site and plotted tree positions in order to enable them to be identified from the drawing at Appendix 5.

1.2. Scope and Purpose of the Report

1.2.1. The purpose of the report is to highlight any issues which may be of concern from a safety perspective. All hazards and potential hazards are recorded and appropriate recommendations are made in order to reduce risk to acceptable levels.

1.3. Tree Survey and Tree Data Schedule

1.3.1. The *Tree Data Schedule* in Appendix 5 contains information gathered for each tree during a ground level survey undertaken on 15th February 2021 by Emma Hoyle and Jack Dunn. No climbed inspections or specialist decay detection were undertaken.

1.3.2. Where applicable, trees with significant defects have been highlighted and appropriate remedial works have been recommended.

1.3.3. The Schedule includes scaled tree images based on the sizes recorded for stem diameter, crown spread, crown height and overall height. Their purpose is to indicate, at a glance, the relative dimensions of each tree. These dimensions were measured using diameter tapes and a clinometer. Where this was not practicable dimensions were estimated.

1.4. Supporting Information

1.4.1. A definition of the Safety Categories can be found in Appendix 1. All other terms used within the Tree Data Schedule are defined and explained in Appendix 3.

2. Site Overview

2.1. Location

2.1.1. The site lies within a private gated residential area. The co-ordinates are 53°32'34.91"N 1°30'15.13"W, and the altitude is 148m above sea level. (Co-ordinates may be pasted or typed into the following site: http://maps.google.co.uk/ where maps, satellite imagery and street views may be accessed).

2.1.2. The survey was limited to the area shown in Figure 1.

Figure 1 Extent of the survey.

2.2. Site Description

2.2.1. The site comprises a building of privately owned flats and detached houses with a communal garden to the south of Keresforth House. Vehicular access exists from Dark Lane. The site is approximately flat with a gently sloping driveway from east to west.

2.2.2. Trees within the surveyed area include species of Purple Plum, Sycamore, Lime, Eucalyptus, Hawthorn, Cedar and Beech. All trees are of mixed ages.

2.2.3. Where defects were found, remedial works have been recommended. These are discussed in Section 3.

3. Tree Condition and Recommendations

This section summarises the findings of our tree survey and the recommendations made in order to reduce risks to an acceptable level. The tree data schedule at Appendix 5 should also be consulted as this gives further information on each specimen.

3.1. Discussion of our Findings

3.1.1. **T1** is an early mature Deodar Cedar. One significant branch which overhangs the driveway has split and requires removal to prevent it falling onto the ground beneath (see Photograph 1). This tree also has minor bark wounds to its lower stem at circa 1m above ground level however these are considered to be in an acceptable condition at present.

3.1.2. **T2** is a mature Sycamore. This tree has several significant dead branches which overhang the driveway and a scattering of dead twigs throughout its canopy (see Photograph 2). Historic severance of a few of its roots (circa 10-15cm diameter) was observed immediately adjacent the driveway. We recommend the deadwood is removed from the trees canopy to prevent the risk of falling branches in windy weather conditions and to encourage natural healing processes. Significant cavities are also developing at old pruning wounds (see Photograph 3); however, these cavities are considered to be in an acceptable condition at present. In addition to removal of deadwood, we recommend the condition of this tree is closely monitored and regularly inspected.

3.1.3. **T3** is an early-mature Beech tree (see Photograph 4). This tree has a presence of Beech bark scale, (*Cryptococcus fagisuga)* (see Photograph 5). The Beech scales (sap-sucking insects) do not cause a significant threat to the health of the tree; however, if allowed to proliferate they are often followed by a secondary infection of the fungi *Neonectria faginata* and *Neonectria ditissima* which cause beech bark disease. This disease can be fatal. We therefore recommend that the Beech bark scale is removed manually by scrubbing away the waxy areas with a brush and detergent. A scattering of small dead branches are present within the trees canopy and a significant bark wound was observed to a branch overhanging the adjacent road. We also recommend undertaking remedial pruning to remove and dead, dying or defective branches from its canopy.

3.1.4. **T4** is an early mature Hawthorn (see Photograph 6). This tree was observed to have major decay to the base of its stems (see Photograph 7), minor deadwood to its upper canopy and historic root severance to some its small roots adjacent the driveway. This tree is considered to be in a poor structural condition due to the decay at its stem base; however, it has been heavily reduced in the fairly recent past. This tree should be closely monitored, or alternatively removed to prevent the risk of structural failure.

3.1.5. **G7** include two early mature Lime trees. Both trees have a presence of significant and minor dead branches to their canopies (see Photograph 9) which we recommend is removed to prevent the risk of falling branches in windy weather conditions and to encourage natural healing processes. One specimen within G7, also has a covering of ivy which slightly hindered our inspection of its entire stem. However, two small bird nests were observed within the ivy at circa 1.5m above ground level.

3.1.6. **T8** is an early mature Sycamore. This tree has a scattering of significant dead branch stubs to its upper crown (see Photograph 10) and a significant bark wound to a branch overhanging the adjacent property. We recommend undertaking remedial pruning to remove any dead, dying of defective branches from the trees canopy.

3.1.7. All other trees were observed to be in an acceptable condition and no further works are recommended at this time.

3.2. Work Priority and Future Inspections

3.2.1. All works have been allocated a priority based on the perceived risk associated with each defect. A schedule is proposed below for the timing of operations. Works may be undertaken sooner, though it is not recommended that the suggested timescales are extended.

Work Priority	Definition	Tree Number
Urgent	As soon as possible	None
Very High	Within 1 month	T1
High	Within 3 months	T2
Moderate	Within 1 year	T3, T4, G7 and T8
Low	Non essential works	None

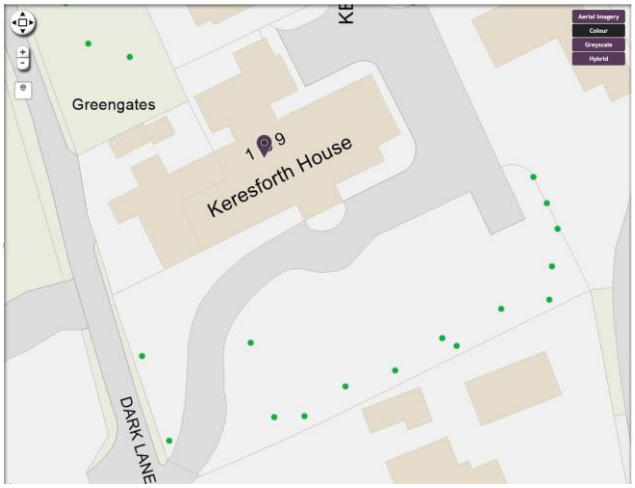
3.2.2. Following completion of these works the trees shall be in an acceptable condition. However, trees are dynamic organisms and should be inspected regularly. The table below suggests a schedule of future inspections based on the condition and location of each tree:

Inspection Frequency (years)	Tree Number
0.5	None
1	None
1.5	T2, T4, T5, G7 and T8
3	T1, T3 and G6

3.2.3. The trees should be inspected sooner if there is a noticeable decline in their condition or following extreme weather events.

3.3. Tree Protection Status

3.3.1. On 3rd March 2021, we accessed the Barnsley Metropolitan Borough Council website. A screen shot is produced below:



3.3.2. We interpret this to mean that:

- The site is not within a conservation area.
- There are tree preservation orders affecting most trees within the site.

3.4. Tree Protection – General Notes

3.4.1. Before undertaking works to trees protected by a Tree Preservation Order, consent needs to be obtained from the local authority which will provide application forms and advice to potential applicants. The removal of dead wood is exempt.

3.4.2. Where the works are proposed for reasons of safety or ill health, a report from a suitably qualified arborist will usually be required. Trees that are dead, dangerous or dying are technically exempt from protection, though it would be prudent to give the local authority 5 days notice of intention and take photographs before undertaking works without prior consent being granted. Fines of up to £20,000 per tree exist for unauthorised works to protected trees.

3.4.3. Heavy fines exist for carrying out unauthorised works to protected trees so we advise that further checks are made before any tree-works are undertaken.

3.5. Species Present – Additional Information

3.5.1. The table below contains general information about the tree species that were observed within the survey. It does not contain information about the individual trees surveyed. Its purpose is to assist readers who are unfamiliar with the characteristics of the various species.

Species	Typical Height at Maturity	Typical Canopy Spread at Maturity	General Notes
Beech	25	18	Deciduous tree native to W and S Europe. Does not have resilient heartwood, therefore typically lives for 100 – 150 years before decay may cause structural failure if unmanaged. Can be an extremely attractive tree at maturity due to its size and majesty. Young branches may retain their foliage through winter as is evidenced in beech hedges. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Fagus+sylvatica for more info.
Deodar Cedar	35	16	Ornamental evergreen tree native to Western Himalayas. Hardy and tolerant of atmospheric pollution. Weeping branch tips and leading shoot differentiate it from other common cedars. There are green and golden varieties. Commonly planted in gardens but due to their large size they are only able to mature in very large gardens and parks. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Cedrus+deodara for more info.
Eucalyptus	30	12	Very vigorous evergreen tree from Australia. One of the world's fastest growing trees. Hundreds of species exist, the most commonly planted in the UK being the Cider Gum which was once tapped for its 'cider'. Most have a blue/grey appearance to their canopy and stringy, peeling bark with shades of orange-grey and salmon-pink. Oil from its leaves is a powerful antiseptic. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Eucalyptus+gunnii for more info.
Hawthorn	6	6	Arguably Britain's most common tree due to its abundance in field and roadside hedges. Deciduous, prickly and one of our most hardy trees, it will tolerate almost all conditions including drought, pollution and coastal winds. Also known as Mayflower because of its abundance of white flowers in May. Red 'haws' ripen from September to November and have only one pip (unlike Midland hawthorn which contains 2 pips). Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Crataegus+monogyna for more info.
Sycamore	25	16	Deciduous tree native to S. Europe, widely naturalised in the UK. Often regarded as a weed species due to its invasive nature and ability to tolerate most conditions. Responds well to pruning. Not a good tree to park beneath in summer due to the sticky sap secreted by aphids. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Acer+pseudoplatanus for more info

3.5.2. The figures quoted regarding typical height and canopy spread should be treated as approximate. Actual heights and spreads vary according to several environmental factors such as soil conditions, climate and presence of competing vegetation.

4. Photographs

See Tree Location Plan for Photo Locations

Photograph 1 – Split branch of T1 overhanging the driveway.

Photograph 2 - Canopy of T2

Photograph 3 – Cavity developing at old pruning wound (T2)

Photograph 4 – T3 – Beech tree

Photograph 5 – Beech Bark Scale on the stem of T3.

Photograph 6 – T4 - Hawthorn

Photograph 7 – Decaying stem base of T4

Photograph 8 – One cavity at early mature Sycamore (Tag 0509)

Photograph 9 – Presence of deadwood to G7

Photograph 10 – Deadwood and upper canopy of T8

Additional Photo showing nest within Ivy to one of G7

5. Signature

This report represents a true and factual account of the trees at

Keresforth House
Dark Lane
Barnsley
S70 6RZ

Signed

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Emma Hoyle FDSc (Arboriculture), ED (Forestry & Arboriculture), M. Arbor. A.

on behalf of

Crown Consultants Ltd

Dated

3rd March 2021

CROWN Consultants
Tree consultants throughout England and Wales

Appendix 1: Safety Categories

A *Safety Class* has been assigned to each tree according to its condition, defects observed, and the works that have been recommended. An explanation of each category is offered below:

Safety Class 1: Trees in good condition. No defects apparent or likely to develop in the foreseeable future. No significant works are required to maintain them in an acceptable condition.

Safety Class 2: Trees with minor defects. Pruning works are usually required to ensure that they are in an acceptable condition (unless they are remotely located).

Safety Class 3: Trees with significant defects. Works are usually necessary in order to bring them into an acceptable condition (unless they are remotely located).

Safety Class 4: Trees with major defects. These trees often require removal or significant pruning works (unless they are remotely located).

It should be noted that not every tree falls neatly into one of the 4 categories listed above. Trees are complex organisms and often have multiple defects. In which case, the category deemed to be most appropriate is selected.

Appendix 2: Survey Methodology

A2.1 A ground level visual survey was carried out using the *Visual Tree Assessment* technique described by Mattheck and Broeler (1994) and endorsed by the Arboricultural Association (LANTRA Professional Tree Inspection course, 2007).

A2.2 Structural condition was assessed by inspecting the stem and scaffold branches from all angles looking for weak branch junctions or symptoms of decay. Particular attention was paid to the stem-base. Cavities were explored using a metal probe in order to assess the extent of any decay. If this was not possible further inspection was recommended in the form of a climbed inspection or using specialist decay detection equipment.

A2.3 The physiological condition was assessed by inspecting the stem, branches and foliage for symptoms of disease. The overall vigour of the tree was also taken into account.

A2.4 Where the condition of a tree was deemed to be unacceptable, recommendations were made according to a scale of priority in order to reduce the liability of the owner. The position of the tree and its potential targets were taken into account.

A2.5 Measurements were obtained using a diameter tape, clinometer, distometer and loggers tape. Where this was not practical measurements were estimated.

A2.6 Some trees were surveyed as groups, though this was avoided close to areas likely to be developed.

A2.7 Finally, a *safety category* was allocated as described in section 2.

Appendix 3: Explanation of Tree Data and Glossary

This section explains the terms used in the **Tree Data Schedule** at Section **Error! R eference source not found.**.

A3.1 General Observations

A3.1.1 **Numbering System:** Each item of vegetation has its own unique number prefixed by a letter such that T1 = Tree 1, G2 = Group 2, H3 = Hedge 3 and W4 = Woodland 4.

A3.1.2 **Age Categories:**

Young Usually less than 10 years old.

Semi-Mature Significant future growth to be expected, both in height and crown spread (typically below 30% of life expectancy).

Early-Mature Full height almost attained. Significant growth may be expected in terms of crown spread (typically 30-60% of life expectancy).

Mature Full height attained. Crown spread will increase but growth increments will be slight (typically 60% or more of life expectancy).

Veteran A level of maturity whereby significant management may be required in order to keep the tree in a safe condition.

Over Mature As for veteran except management is not considered worthwhile.

A3.1.3 **Species:** Common names and Latin names are given.

A3.1.4 **Height:** Measured from ground level to the top of the crown.

A3.1.5 **Stem Diameter:** Taken at 1.5m above ground level where possible. On multi-stemmed trees this measurement may be taken at ground level though usually an indication of the number of stems and average diameter is given, e.g. 3 x 30cm.

A3.1.6 **Crown Height:** Measured from ground level to the height at which the main crown begins. Where the crown is unbalanced it is measured on the side deemed to be most relevant. This is usually the side facing the area of anticipated development.

A3.1.7 **Tree Diagram:** This scaled drawing is computer animated based on measurements taken for stem diameter, crown height and spread and overall height. It is designed to help the reader rapidly assess the data. It is not an accurate representation of the form of the tree.

A3.1.8 **Crown Spread:** Measured north, east, south and west. This is taken from the centre of the stem and usually rounded up to the nearest metre.

A3.1.9 **Observations:** If a tree's position is considered to be relevant it will be commented upon (e.g. overhanging a children's play area). Tree form and pruning history are also recorded along with an account of any significant defects. Defects and descriptive terms are dealt with in more detail at the end of this section.

A3.1.10 **Recommendations:** Usually based on any defects observed and intended to ensure that the tree is in an acceptable condition.

A3.1.11 **Priority Scale:** Depending upon the threat posed by the tree, and the likelihood of failure, recommendations should be carried out according to the following priority scale:

Urgent	To be carried out as soon as possible.
Very High	To be carried out within 1 month.
High	To be carried out within 3 months.
Moderate	To be carried out within 1 year.
Low	To be carried out within 3 years.

A3.1.12 **Inspection Frequency:** An interval of 6 months, 1 year, 1.5 years or 3 years is allocated before the next inspection is due. Wherever practical, consideration should be given to seasonal changes so that deciduous trees are not always surveyed in winter when they have no leaves, or in summer when leaves may obscure branches within the upper crown.

A3.1.13 **Vigour (An indication of growth rate and the tree's ability to cope with stresses):**

High	Having above average vigour.
Moderate	Having average vigour.
Low	Having below average vigour.
Very Low	Tree is struggling to survive and may be dying.

A3.1.14 **Physiological Condition:**

Good	Healthy and with no symptoms of significant disease.
Fair	Disease present or vigour is impaired.
Poor	Significant disease present or vigour is extremely low.
Very Poor	Tree is dying.

A3.1.15 **Structural Condition:**

Good	Having no significant structural defects.
Fair	Some defects observed though no high priority works are required.
Poor	Significant defects found. Tree requires monitoring or remedial works.
Very Poor	Major defects which will usually require significant remedial works or tree removal.

A3.1.16 **Amenity Value:**

Very High	Exceptional specimen, observable by a large number of people.
High	Attractive specimen, observable by a significant number of people.
Moderate	One of the above factors is not applicable.
Low	Unattractive specimen or largely hidden from view.

A3.1.17 **Life Expectancy:** The estimated number of years before the tree may require removal. Classified as (<10), (10 – 20), (20 – 40), or (40+).

A3.1.18 **Safety Category:** These are explained in detail in Appendix 1.

A3.2 Evaluation of Defects

A3.2.1 Cavities, wounds, deadwood etc are all evaluated as follows:

Major	Such that structural integrity is, or will become, compromised and the tree is, or will inevitably become, hazardous.
Significant	A defect that may over time become a major defect, though not necessarily so. This will depend on the vigour of the tree and its ability to deal with decay etc.

Minor A defect that is not likely to compromise the structural integrity of the tree.

General Glossary

Adaptive growth	In tree biomechanics, the process whereby wood formation is influenced both in quantity and quality by the action of gravitational forces and mechanical stresses on the cambial zone.
Aerobic	Conditions in which oxygen is freely available, or to biomechanical processes that depend on the presence of oxygen.
Anaerobic	A condition marked by the absence of oxygen; Generally such areas are unsuitable for normal life and growth of plant tissues. These sites tend to be populated by bacteria capable of surviving low oxygen conditions often associated with Slime Flux.
Arboricultural Implication Assessment	The early involvement of an arborist on a development site can avoid costly delays and mistakes whilst allowing a site to achieve its full potential and retain important trees.
Arboriculture	The culture and management of trees as groups and individuals primarily for amenity and other non-forestry purposes.
Arborist	A person possessing the technical competence through experience and related training to provide management of trees or other woody plants in a landscape setting. Generally involved with the development or management of trees for visual amenity or land management rather than the growth of trees for product or profit.
Ariel Inspection	The science of inspection is continually evolving, however, there can be little substitute for close inspection of a particular feature. We are happy to undertake a full Ariel inspection service, compliant with all heath and safety legislation.
Barrier zone	A layer within an annual increment of wood which contains abnormal xylem cells, laid down by the cambium in response to wounding or other trauma.
Biomechanics	This area of tree care has come to the fore in recent years, enabling a more accurate assessment of tree stability to be undertaken. Often trees previously condemned, can be managed and confidently retained to offer ongoing benefits.
Body language	In trees, the outward display of growth responses and or deformation in response to mechanical stress.
Bole	Or Trunk, the main stem of a tree below its first major branch.
Bracket	A type of fruiting body produced by various fungal species, plate like to hoof like in shape and often a one sided attachment to the wood or bark.
Branch bark ridge	A ridged area located at the union of a branch to a trunk or stem.
Branch Collar	Trunk tissue that forms around the base of a branch between the main stem and the branch, or between a main branch and a lateral branch. As a branch decreases in vigour or begins to die, the collar usually becomes more pronounced and completely encircles the branch.
Brown Rot	Form of decay where cellulose is degraded, while lignin is only modified.
Buttress Root	Roots that emerge from the base of the tree stem, normally large and well developed that rapidly reduce in diameter to create the Root Plate this offers structural support for the tree. Buttress roots divide rapidly forming the connection between the stem and the transport roots.
Cabling Bracing	Installation of steel cables, attached to lag screws or bolts placed in tree limbs, to provide additional support or to limit movement and stress of limbs. Recent developments have established non-injurious flexible systems that enable the partial movement of parts within reasonable limits enabling the trees to produce Reaction growth and forms an excellent alternative to Propping The installation of such features does require legal interpretation.
Callus	Undifferentiated cells often formed at the edges of recent injuries. This tissue quickly becomes differentiated, forming cells of the type characteristic of that position on the tree (e.g. forming wood, bark, roots, etc.) see wound response tissue.
Cambium	A thin layer of actively growing and dividing cells, located between the xylem (sapwood) and bark of a plant; the part responsible for radial growth of a tree stem or branch.
Canopy	The topmost layer of twigs and foliage in a woodland, tree or group of trees.
Cellulose	A carbohydrate consisting of molecules bonded in strings to create filaments; a key component of plant cell walls. May be selectively destroyed by fungi.
Canker	A localised area of dead bark and cambium on a stem or branch, caused by fungal or bacterial organisms, characterised by woundwood development on the periphery. This may be annual or perennial.
Cavity	An open and exposed area of wood, where the bark is missing and internal wood has been decayed and dissolved.
Chlorotic	Also Chlorosis. A condition of the plant marked by yellowing of normally green foliage, often indicating nutrient deficiency or plant dysfunction.
Clinometer	Devices that measures vertical angles, and provides direct height measurements of objects by triangulation.
Co-dominant stems/trunk	Are forked branches or trunks of nearly the same size in diameter and lacking a normal branch union.
Compacted soils	Soils in which the air-space (oxygen space) has been reduced or eliminated, reducing water infiltration and percolation, reducing root presence and inhibiting new root development.
Compartmentalisation	The physiological process that creates the chemical and mechanical boundaries that act to limit the spread of disease and decay organisms.
Compression Failure	Localized buckling of fibres and other longitudinal elements produced by compression of wood along the grain; compression failures sometimes develop in standing trees.
Compression Strength	The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees using special drilling devices
Compression Wood	Abnormal wood formed on the lower side of branches and curved stems, with physical properties different from normal wood.
Conservation Area	In Great Britain, designated areas of architectural or historical interest, in which there are special procedures for planning applications. Additionally tree works cannot generally be undertaken without prior notification (Currently 6 weeks) to the relevant local planning authority. See also Tree Preservation Orders.
Core Sample	A sample of wood extracted from a trunk or branch, using an increment borer tool. The resulting core can be analysed for characteristics of growth, wood strength, structure, decay, and for species identification.
Crotch	The union of two or more branches; the auxiliary zone between branches.

Crown	**The upper canopy of a tree, including upper trunk, scaffold branches, secondary branches, stems and leaves.**
Crown lifting / raising	**Crown Lift The removal of the lowest branches, usually to a given height. It allows more residual light and greater clearance underneath for vehicles etc.**
Crown reduction	**The reduction of a tree's height or spread while preserving its natural shape.**
Crown thinning	**The removal of some of the density of a tree's crown, usually 5-25% allowing more light through its canopy and reducing wind resistance.**
Deadwood (noun)	**Deadwood is often present within the crown or on the stems of trees. In some instances is may be an indication of ill health, however, it may also indicate natural growth processes. If a target is present beneath the tree, deadwood may fall and cause injury or damage and should be removed, otherwise deadwood can remain intact for conservation purposes (insects, fungi, birds etc.).**
Deadwood (verb)	**The removal of dead branches from a tree's canopy, usually of a specified size (in diameter).**
Decay	**Progressive deterioration of organic tissues, usually caused by fungal or bacterial organisms, resulting in loss of cell structure, strength, and function. In wood, the loss of structural strength.**
Decay Detection	**The assessment of decay within a tree has been traditionally difficult, but recent advances have made it possible to achieve accurate representations of the internal section of a tree in both 2D and 3D, removing doubt over the condition of the tree and allowing accurate management decisions.**
Decurrent	**In trees a, system of branching in which the crown is borne on a number of major widely spreading limbs of similar size. In fungi relates to toadstools whose gills run down the stem and leaves and other plant organs, which extend down the stem.**
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.**
Defoliation	**The losing of plants foliage.**
Dieback	**Progressive death of buds, twigs and branch tissues, on individual limbs resulting in Deadwood, or throughout the canopy, extreme cases can result in Stag Heading.**
Dripline	**A projected line on the ground that corresponds to the spread of branches in the canopy; the farthest spread of branches.**
Epicormic shoots	**Fast growing, weakly attached shoots/branches that often grow as a response to stress factors upon a tree or branch removal.**
Excurrent	**In trees, a system of branching that a single leader remains dominant, through the control of lateral branches.**
Failure	**In connection with tree hazards, a partial or total fracture within the wood tissue or loss of cohesion between roots and soil. (In total failure affected parts will snap or tear away completely, Partial failure there is a crack or deformation, which results in an altered distribution of mechanical stress.**
Felling Licence	**In Great Britain, a permit to fell trees in excess of a certain size or total volume.**
Feeder Roots	**Fine fibrous Water and nutrient absorbing roots located in the outer root system.**
Flush-Cut	**In trees and shrubs, a pruning cut close to the parent stem, which removes the branch bark ridge.**
Foliage	**The live leaves or needles of the tree; the plant part primarily responsible for photosynthesis.**
Formative pruning	**The trimming of a tree to remove weaknesses and irregularities which may lead to problems. The formative pruning operation is aimed at reducing the potential for future weaknesses or problems within the tree's crown.**
Gall	**An abnormal, disorganized growth of plant tissues, caused by parasitic or infectious organisms such as insects, fungi, bacteria, or viruses.**
Girdling	**In woody plants, any form of damage that destroys the bark and / or the Cambium all the way around the stem, branch or root, normally resulting in death of the damaged section.**
Girdling Root	**In woody plants, a root that grows across the buttress, or across other roots, eventually causing constriction of the radial growth.**
Growth Increment	**The incremental growth added as new annual ring develops each season over existing wood. This is seen as (growth) rings in cross-sections of wood.**
Hazard beam	**An upwardly curved branch in which strong internal stresses may occur without the compensatory formation of extra wood (longitudinal splitting may occur in some cases).**
Heartwood	**Inner non functioning tissues that provide structural support to trunk.**
Heave	**In relation to shrinkable clay soils, expansion due to rewetting of a volume of soil previously subjected to the removal or water by plant / trees following felling or root severance. Also in relation to root growth, the lifting of pavements and other structures by radial expansion. Also in relation to tree stability, the lifting of one side of a wind rocked root plate.**
Herbicide	**A chemical compound that causes the death of a plant.**
Included Bark	**Bark that becomes embedded in a crotch between branch and trunk or between co-dominant stems, usually found in narrow or tight crotches, and causes a weak structure.**
Increment Borer	**A tool that cuts and extracts a narrow cylinder of wood from a tree for analysis of the wood tissue and growth increments.**
Internodal	**The part of a twig between two nodes, or points of beginning of annual twig growth. The node is formed at the end of each year's growth.**
Leader	**The primary terminal shoot or trunk of a tree.**
Lignin	**The hard cement like constitute of wood cells found within the Cellulose matrix. Lignification is the addition of lignin to the cellulose filaments. Lignin can be specifically removed by certain fungi.**
Limb	**A large lateral branch growing from the main trunk or from another larger branch.**
Lion Tailing	**Often the result of poor pruning practices; the main leader or branches are largely devoid of side branches, growth is restricted to the end of branches and is likely to suffer damage through end loading.**
Live Crown Ratio	**The proportion of the total height of the tree that is represented by live branch growth within the canopy. Used as an indicator of potential vitality, when compared as a ratio to the woody mass of the tree.**
Lopping	**In trees, a general term that related to the removal of branches from a tree.**
Macronutrient	**One of six elements required in relatively large quantities by a plant for metabolic processes; essential to plant health. (See micronutrient)**
Micronutrient	**One of seven elements required in small quantities by a plant for metabolic processes; essential to plant health. (See macronutrient)**

Monitoring	**Due to the relative life span of trees in relation to our own, long-term monitoring provides a valuable insight to the health of trees, identifying decline and or stabilisation and or improvement.**
Mulch	**A material laid over the root system of a tree to help conserve moisture within the soil. Additionally it may help control the development of weeds close o the tree.**
Mycelium	**A mass of growing filaments (hyphae) formed by fungi.**
Mycorrhizae	**A term given to the symbiotic relationship between roots and certain beneficial fungi. Mycorrhizae are the combined root / fungal growth.**
Natural Pruning	**The shedding of a branch or twig that has died back naturally and has become decayed at or near its base.**
Necrosis	**The failure and subsequent death of a branch, leader or tree.**
Negligence	**A failure to take reasonable action to deal with a hazard to prevent damage to property or person.**
Node	**The point were a leaf is connected to a shoot, the point were an auxiliary bud may develop**
Nutrient	**Substances that are absorbed by living organisms for the maintenance of internal processes.**
Occluding tissue	**The general tern of wood, cambium and bark that develop around the site of a wound on a woody plant**
Pathogen	**A microorganism that causes diseases within another organism.**
Petiole	**The stem of the leaf, attaching the leaf blade to the twig.**
Phloem	**The principle conductive tissue that the products of Photosynthesis are transported around the plant**
Photosynthesis	**The process were light energy is used to create energy (Carbohydrate) for use within the plant.**
Pollard	**A term for a pollarded tree.**
Pollard head	**The swollen section of branch / stem that forms behind the pollarding cut.**
Pollarding	**The complete or partial removal of the crown of a young tree so as to encourage the development of numerous branches either for amenity or historically as fodder, repeated management is required cyclically to maintain the feature**
Propping	**The use of artificial apparatus to support living sections of a tree that may be prone to failure. The installation of such features does require legal interpretation.**
Prune or Pruning	**Selective removal of woody plant parts of any size, using saws, Loppers, Secateurs, or other pruning tools.**
Rams Horn	**In connection with wounds on trees, a roll of wound wood or occluding tissues that has a spiral appearance in cross section. Opposing faces may result in the formation of cracks as they connect.**
Reaction Wood	**Wood with distinctive anatomical and physical characteristics, formed in parts of leaning or crooked stems and in branches to provide additional strength / support. In hardwoods, tension wood usually forms. In conifers, compression wood is usually found.**
Reaction Zone	**A zone normally darker than surrounding wood that denoted the boundary often a defensive one between functional sapwood and dysfunctional or decaying wood.**
Re-grading	**The raising or lowering of a soil profile from its original grade.**
Rejuvenation pruning	**Where historically or environmentally important trees are to be retained, their life spans can be significantly extended through the adoption of particular pruning regimes.**
Rejuvenation root treatment	**Management of the root zone can have a significant positive effect upon the health of trees. Physical, mechanical and biological approaches are available and can be prescribed in accordance within the constraints of individual sites.**
Remedial Action	**In tree hazard management, action to mitigate or remove the risk of injury to persons or property.**
Remedial pruning	**The removal of old stubs, deadwood, epicormic growth, rubbing or crossing branches and other unwanted items from the tree's crown.**
Resistograph	**Invasive decay detection technique whereby the resistance offered by the timber to a spinning probe is measured and plotted. Invasive though very small hole diameter.**
Rib	**In tree body language, a long narrow, axial protuberance which often over lays a crack.**
Ring Barking	**Artificial Girdling of the stem, to result in the death of a tree. May be used in habitat creation were the retention of dead standing trees is required.**
Risk	**The likelihood of potential damage occurring to a feature or a hazard resulting in harm.**
Rod Bracing / Bolting	**Traditionally, this has relied upon the Installation of steel rods or bolts through the stems or limbs, to reduce twisting or splitting of the wood. The installation of such features does require legal interpretation.**
Root Barriers	**Both Buildings and services can benefit from the installation of root barriers to protect a soil volume from the ingress of roots.**
Root Collar	**The basal area of the tree; transition zone from trunk to root. Also sometimes called trunk flare.**
Root Crown	**The area where the trunk turns into the roots, usually at soil level, the trunk tapers out at the base.**
Root Plate	**The primary support area for the tree; an area of the root system close to the base that structurally anchors the tree to the soil.**
Root Rot	**Either a general term for decay within the wood of the lower stem / buttress roots, or a disease in which the fine roots are killed.**
Root System	**The portion of the tree containing the root organs, including buttress roots, transport roots, and fine absorbing roots; all underground parts of the tree.**
Root Zone	**The area and volume of soil around the tree in which roots are expected. May extend to three or more times the branch spread of the tree, or several times the height of the tree.**
Sail Area	**In arboriculture, a general description for the wind intercepting area of a trees live crown. This can vary with both orientation and season.**
Sanitation	**In plant disease control, the removal of material that could a source of infection by a pathogen. Removal of diseased plant parts, such as fallen leaves and twigs, and pruning of dead and diseased branches. Diseased parts should be burned or buried under soil or active compost.**
Sapwood	**Xylem wood tissue, usually light in colour, representing the outer growth rings of the wood. Usually living, reactive wood tissue, in a healthy tree. See heartwood**
Scaffold limbs / scaffold Branches	**The branches that from the main network framework of the crown of a tree.**
Senescent	**A decline in growth and vigour due to age or stress factors.**
Shrub	**A woody plat that branches at or close to the ground level and so does not have a single stem.**
Slime Flux	**Relating to a toxic condition from the spreading of bacteria or their products from a source of infection; characterized by malodorous gases, or salt deposits upon the bark. If these products enter the sap stream,**

	localised vessel necrosis can result, usually associated with anaerobic conditions.
Snag	In a woody plant, a portion of cut or broken stem which extends beyond any growing point or dormant bud.
Soft Rot	A kind of wood decay, were a fungi degrades cellulose within the cell wall, without causing overall degradation.
Soil Compaction	The compression of soil, causing a reduction of pore space and an increase in the density of the soil. Air is squeezed out and nutrients become locked. Tree roots cannot grow in compacted soil.
Soil Profile	The characteristics of a soil as regards to relative depth; the changes in soil texture and composition that occur with depth.
Soil Texture	The classification of the constituent particles of soil; includes sand, silt and clay particles. Directly related to soil porosity, permeability, and aeration.
Sonic Decay Detection	Non invasive method whereby sound waves are passed through the tree and the speed is measured. Slow speeds indicate decay and a tomography picture representing the inner stem is produced.
Sprout	Also Epicormic shoot. A shoot or stem that grows from the bark of a tree; adventitious or secondary growth generally the result of physiological stress.
Stag Heading	In a tree, a state of dieback were dead branches protrude beyond the current living crown.
Stress	In plant physiology, conditions were one or more physiological functions Are not working within normal parameters.
Stump Grinding	The removal of a tree stump using a specialist grinding machine.
Subsidence	In relation to vegetation, the removal of water by plant growth resulting in localised shrinkage in the soil volume.
Sucker	Same as sprout.
Suppressed	Trees which are dominated by surrounding vegetation and whose crown development is restricted from above.
Systemic	Affecting the whole plant or organism. A systemic compound is carried throughout the entire plant to all parts through the vascular system.
Target	Any person or object within reach of a falling tree or part of a tree that may be injured or damaged.
Target Pruning	The pruning of a branch were the wound affects only branch material, often result in a target shaped wound.
Tension Wood	Reaction wood typically formed on the upper side of limbs or curved stems; characterized by lack of cell wall lignifications (higher ratios of cellulose to lignin).
Thermography	The use of very sensitive equipment can detect small temperature changes within the volume of a tree, these small changes are used to identify the location of decay, faults and water pockets. Totally un-invasive.
Tight Union / Tight Crotch	Also, narrow crotch. A crotch with a narrow angle between branches, often having included bark.
Tomography	The comparison of sound or stress waves through the tree allows the creation of a 2D or 3D representation of the internal structure of a stem or branch section and highlights areas of damage. Virtually non-injurious.
Topography	The configuration of surface features, including the vertical and horizontal relationships or positions of the ground and other features.
Topping	The practice of cutting large limbs back severely, without regard to form or habit of the tree. Cuts are usually made between lateral branch nodes. This practice is extremely injurious to trees, and promotes decay and structural weakness within the canopy.
Tree	A woody plant that typically has a single stem, at maturity has a height of a least 4 metres and a stem diameter at breast height of at least 75mm.
Tree Preservation Order	In Great Britain, an order made by the local planning authority, were consent must be gained before undertaking all but exempt works to a tree.
Trunk Flare	The basal area of the trunk that flares or widens, and merges with the main roots. See root collar
Veteran Tree	Veteran trees are often found in large parks or estates and commonly affected by extensive decay or have been subject to extensive works. These trees are retained for historical importance and often pose greater risk than normal, which is generally justified. Such trees need careful management and often propping or bracing to support them, some require fencing to limit access.
Vigour	Active, healthy growth of plants: ability to respond to stress factors.
Visual Tree Assessment (VTA)	An assessment of the mechanical condition of trees based upon their 'body language'. Trees are dynamic and respond to faults / decay / environmental factors in various ways, these responses can be indicative of structural integrity.
Wetwood	An infection caused by bacteria living inside the plant tissues. The bacteria ferment the plant fluids, resulting in death of nearby cells, and often causing exudations of fluid from the bark, often referred to as a Slime Flux.
White Rot	A kind if wood decay were a fungi attacks the lignin within the wood matrix
Wind loading	Forces placed upon tree canopy, branches, trunk and roots of a tree under windy conditions.
Wind Throw	The failure of a tree due to wind loading.
Witches Broom	A deformed or unusual growth of twigs from adventitious buds, caused by insects, disease, or dieback of twigs and buds.
Wood	Secondary Xylem; the main structural support and water conducting tissue of trees and shrubs.
Woodland Structure	The vertical and horizontal arrangement of trees within a group or woodland i.e. Dominant - trees with a crown above the upper layer of the canopy, Co dominant - trees that define the general upper edge of the canopy, Intermediate - trees that have been largely overgrown by others, Suppressed - trees that have been overgrown and occupy an under storey position and grow slowly, often severely asymmetrical.
Wound Response Tissue	Also Occluding Tissue, Wound Wood or Callus. Differentiated wood tissue that grows around the margins of a wound or injury.
Wound Wood	Wood with atypical anatomical features, formed in the vicinity of a wound and a term to describe the occluding tissues around a wound
Xylem	Plant tissues with special function of translocation of water and dissolved nutrients.

Appendix 4: Author's Qualifications

Qualifications & Experience of Emma Hoyle FDSc (Arboriculture), ED (Forestry and Arboriculture), M. Arbor. A.

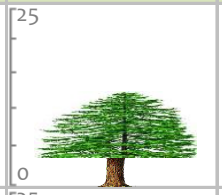
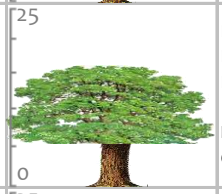
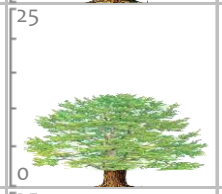
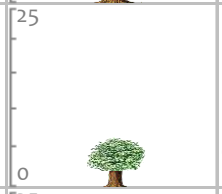
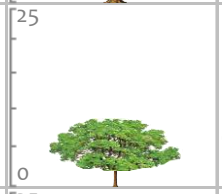
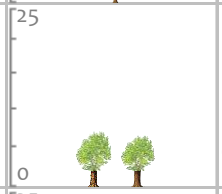
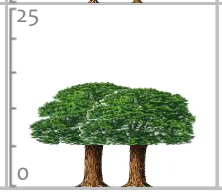
Emma is a qualified Arboricultural Consultant educated to Level 5 in Arboriculture at Askham Bryan College, is a professional member of the Arboricultural Association and is a LANTRA accredited Professional Tree Inspector. She has worked for Crown Consultants since 2015 and has since written numerous reports relating to all aspects of arboriculture including; planning and development, vegetation related subsidence, tree preservation orders and tree risk assessment. Emma regularly attends seminars and events in order to keep abreast with current knowledge and best practise in Arboriculture.

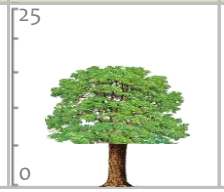
Prior to becoming an arboricultural consultant, Emma worked for two reputable tree surgery firms from 2008 and became an NPTC Qualified tree surgeon after completing a Level 3 Extended Diploma in Forestry and Arboriculture at Askham Bryan College.

Emma also has experience in other areas of arboriculture such as forest clearance, tree planting, tree maintenance and landscaping.

Appendix 5: Tree Data Schedule and Tree Location Plan

The Tree Data Schedule and Tree Location Plan accompanying this report follow this page.

Reference (G = Group, H = Hedge)	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N / W / E / S	Scaled Tree Diagram (m)	Notes	Recommendations: Priority	Recommendations: Inspect Freq (yrs)	Vigour: Physiological Condition / Structural Condition	Amenity Value: Life Expectancy (yrs) / Safety Class
T1	Early-Mature **Deodar Cedar** Cedrus deodara.	12	4	59	N 8, W 6.5, E 6.5, S 6		Position: Tag number: 0501. Form: Twin-stemmed at 3m with a balanced crown. History: No evidence of significant pruning. **Defects: Minor bark wounds at 1m (acceptable condition at present) and significant split branch to north, overhanging driveway.**	Remove split branch overhanging driveway. **Very High**	3	Moderate Good Good	Moderate 40+ **2**
T2	Mature **Sycamore** Acer pseudoplatanus.	16	6	100	N 10, W 11, E 11, S 10		Position: Tag number: 0502. Form: Triple-stemmed with a well-formed crown. History: Occasional pruning wounds due to crown lifting (significant cavities developing, acceptable condition at present). **Defects: Significant deadwood over driveway and scattered dead twigs throughout.** Other: Historic root severance adjacent driveway.	Remove deadwood and monitor. High	1.5	Low Fair Good	Moderate 10-20 **3**
T3	Early-Mature **Beech** Fagus sylvatica.	12	2	80	N 7, W 8, E 6, S 9		Position: Tag number: 0503. Form: Multi-stemmed at 2m with a well-formed crown. History: Occasional pruning wounds due to crown lifting. **Defects: Minor bark wound to underside of eastern limb, small dead branches and significant bark wound to branch overhanging road.** Other: Beech bark scale presence.	Remove Beech bark scale and remedial prune. Moderate	3	High Good Good	Moderate 40+ **2**
T4	Early-Mature **Hawthorn** Crataegus monogyna.	5	1.5	41	N 1.5, W 2, E 1.5, S 1.5		Position: Tag number: 0504. Form: Multi-stemmed at ground level with a slightly unbalanced crown. History: Previously reduced. **Defects: Major decay to base of stems and minor deadwood to upper crown.** Other: Historic root severance adjacent driveway.	Closely montior, or remove. Moderate	1.5	Moderate Fair Poor	Low <10 **3**
T5	Semi-Mature **Sycamore** Acer pseudoplatanus.	8	2.5	4 at 25	N 5, W 5, E 5, S 6		Position: Tag number: 0508. Form: Multi-stemmed at ground level with a balanced crown. History: Occasional pruning wounds due to crown lifting. **Defects: Minor included bark at base and scattered dead twigs throughout.** Other: Compost heap against lower stem, prevented thorough inspection of all stems.	No action required. n/a	1.5	Moderate Fair Fair	Low 10-20 **1**
G6	Semi-Mature **Eucalyptus** Eucalyptus sp.	av 6	av 1.5	av 15	N av, W 1, E 1, S 1 each		Position: Situated on third party land. Form: Three specimens. History: Reduced. **Defects: No significant defects observed.** Other: Access prevented detailed inspection.	No action required. n/a	3	High Good Fair	Low 10-20 **1**
G7	Early-Mature **Lime** Tilia sp.	av 14	av 6	av 58	N av, W 5.5, E 5, S 3 each		Position: Tags 0511 and 0951. Form: Two vertical specimens. History: Occasional pruning wounds due to crown lifting. **Defects: Significant and minor dead branches to upper crown. Covering of Ivy to one specimen.** Other: Bird nests found at circa 1.5m above ground level within ivy.	Remove deadwood. Moderate	1.5	Moderate Fair Good	Moderate 40+ **2**

Reference (G = Group, H = Hedge)	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N / W / E / S	Scaled Tree Diagram (m)	Notes	Recommendations: Priority	Recommendations: Inspect Freq (yrs)	Vigour: Physiological Condition / Structural Condition	Amenity Value: Life Expectancy (yrs) / Safety Class
T8	Early-Mature **Sycamore** Acer pseudoplatanus.	16	6	60	N 5 / W 5 / E 5 / S 8		Position: Tag 0515. Form: Twin-stemmed at 5m with an unbalanced crown. History: Occasional pruning wounds due to crown lifting. **Defects: Scattered significant dead branch stubbs to upper crown and significant bark wound to branch overhanging adjacent property.**	Remedial prune. Moderate	1.5	Moderate Fair Good	Moderate 20-40 **2**

N

MN

Tree Location Plan

CROWN
Arboricultural Consultants

Site:
Keresforth House
Barnsley, S70 6RZ

Ref No:	10735/TLP
Revision:	1
Scale:	1:500
Paper Size:	A3

MN = Measured North:
Canopy spreads are measured to an approximate north which is defined by site features. This is often more accurate, especially where rows of trees are not aligned N-S or E-W.

Location of Photo 1

1

Class 1:
Trees in good condition (green) or acceptable condition (blue).
No defects apparent or likely to develop in the foreseeable future.
No significant works recommended.

Class 2:
Trees with minor defects.
Pruning works are usually required to ensure that they are in an acceptable condition (unless they are remotely located).

Class 3:
Trees with significant defects.
Works are usually necessary in order to bring them into an acceptable condition (unless they are remotely located).

Class 4:
Trees with major defects.
These trees often require removal or significant pruning works (unless they are remotely located).

Stem & canopy of Class 1 tree

Stem & canopy of Class 2 tree

Stem & canopy of Class 3 tree

Stem & canopy of Class 4 tree