Acorn
ARBORICULTURE

ARBORICULTURAL REPORT

At:
2 Ladyroyd
Silkstone Common
Barnsley
S75 4SF

For:

John Gostelow

June 2016

1 Purpose & Brief

1.1 We have been commissioned to provide arboricultural advice on one tree to the front of the property, 2 Ladyroyd, Silkstone Common, Barnsley.

1.2 This report can be used to inform the land owner regarding appropriate tree management.

1.3 **Documents provided:** None

2 Statutory Controls

2.1 We have been informed that a TPO protects the tree on the site - TPO no. 3/2000. **This means that the consent of the Local Planning Authority is required before undertaking any work prescribed in this report.**

2.2 The site is not within a Conservation Area.

2.3 The Wildlife and Countryside Act 1981 (together with the amendments of 1985 & 1991, the subsequent variations to the schedule orders, and strengthening amendments made within the Countryside and Rights of Way Act 2000) forms the basis for legislation protecting Britain's flora and fauna. Nesting birds and all species of bat are afforded statutory protection. It is therefore important to be vigilant when implementing tree and woodland management operations and an appropriate level of risk assessment should be carried out in consideration of the following:

- disturbing a nesting bird
- disturbing a roosting bat or damaging, destroying or blocking access to a bat roost
- intentionally killing, injuring or taking a bat
- being in possession or control of a bat or anything derived from a bat

3 SURVEY DETAILS

3.1 Surveyor/s

3.1.1 Mark Jennings HND Arboriculture

3.2 Date of Survey

3.2.1 28 May 2016

3.3 Weather Conditions

3.3.1 Sunny, dry, warm, slight breeze

3.4 Site Description

3.4.1 This site is a dwelling within a relatively new development (approximately 11yrs old) comprising of both detached and semi-detached properties. There is an assortment of trees of varying age and species (such as Sycamore, Ash, Lime, and Silver birch) present in the, primarily, residential area.

3.4.2 The subject tree is located within a shrub bed to the front of the dwelling. The tree stem is 8m from the front elevation of the house and its crown gives the house corca 3m clearance.

3.5 Data Collection

3.5.1 The arboricultural survey was undertaken in accordance with a VTA (Visual Tree Assessment).

3.5.2 Details of all relevant vegetation were assessed and these details are presented below.

3.5.3 The position of the trees where necessary are shown on the plan appended to this report.

4 FINDINGS

Item No.	Species	Height (m)	DBH (mm)	Age (years)	Life Expectancy (years)	Physiological Condition	Risk of significant harm from tree failure (annualised)
T1	Lime (Tilia spp.)	16	760	70	20+	Poor	Low

Notes:

- Stem enveloped ground stones with subsequent slightly elevated risk of failure but tree has produced good amounts of adaptive growth
- Single stem, bifurcates at 4m
- Overpruned
- Very high dense crown circa 8m above ground level
- Significant amounts of reaction growth from heavy pruning
- High incidence of wounding to stem and branches
- Wounding typically 60-100mm diameter with possible future internal coalescence of stem decay at 5-5.5m.
- Relatively low incidence of wound occlusion and callus formation
- Tight branch structure with slightly elevated risk of failure
- Over pruning has had a significant deleterious effect on the trees natural shape and therefore its visual amenity value. For instance tree appears as a “lollipop” in the streetscene.

Recommendations:
Remove and replace

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 The tree (Lime, Tilia sp) is located within a shrub bed of ornamental plantings to the front of 2 Ladyroyd, Silkstone Common, Barnsley, S75 4SF. The tree stem is 8m from the front elevation of the property and the crown some 3m away from the dwelling. The location of the tree is shown on the plan appended to this report.

5.2 Concerns with respect of the risk of harm form the tree, possible damage to underground services, foundations and drains and possible subsidence have been raised. However I found no evidence of tree damage to structures and I have not undertaken a subsidence risk assessment because various types of engineer's reports and soil analysis would have to be undertaken, in addition to visible damage being present.

5.3 The tree was assessed with respects of its risk of significant harm over the next 12 months. There is a slightly elevated risk of harm from the tree due to the visible structural condition of the lower stem (growing over stone and bricks) and visible adaptive growth. In addition there is a slightly elevated risk of branch failure from tight forks in the crown and the significant numbers of relatively large diameter pruning wounds observed. For instance, there is likely to be underlying wood dysfunction and decay coalescence at 5m-5.5m where numerous pruning wounds were observed. Nevertheless, in despite of theses defects increasing the risk of harm overall the risk of harm for the next 12 months is calculated as being generally low.

5.4 The above issues aside, in my opinion the tree is undoubtedly a poor specimen due to the previous pruning undertaken. The crown is approximately 8m above ground level and it is estimated that well in excess of 50% of the natural crown shape has been removed in comparison to an unpruned tree of the same species, age and size.

5.5 The tree appears in the streetscene as a "lollipop" and its natural shape, character and visual amenity value has been severally affected (see photos). In my opinion it is highly doubtful that, due to the pruning, that the LPA would make a Tree Preservation Order (TPO) on the tree now.

5.6 Because of the present poor visual amenity of the tree in my opinion its removal will not have a detrimental effect on the area and it is predicted that if the tree were removal and replaced that a new tree, if left to grow to its natural dimensions, would improve streetscene amenity in time. I therefore believe it to be entirely reasonable to recommend the trees removal and replacement a Lime (*Tilia cordata 'Rancho'*), or a Hornbeam (*Carpinus betulus*).

5.7 Bringing all the threads above together in my opinion is, on balance, to remove the Lime tree and replace it with another tree in the very near vicinity.

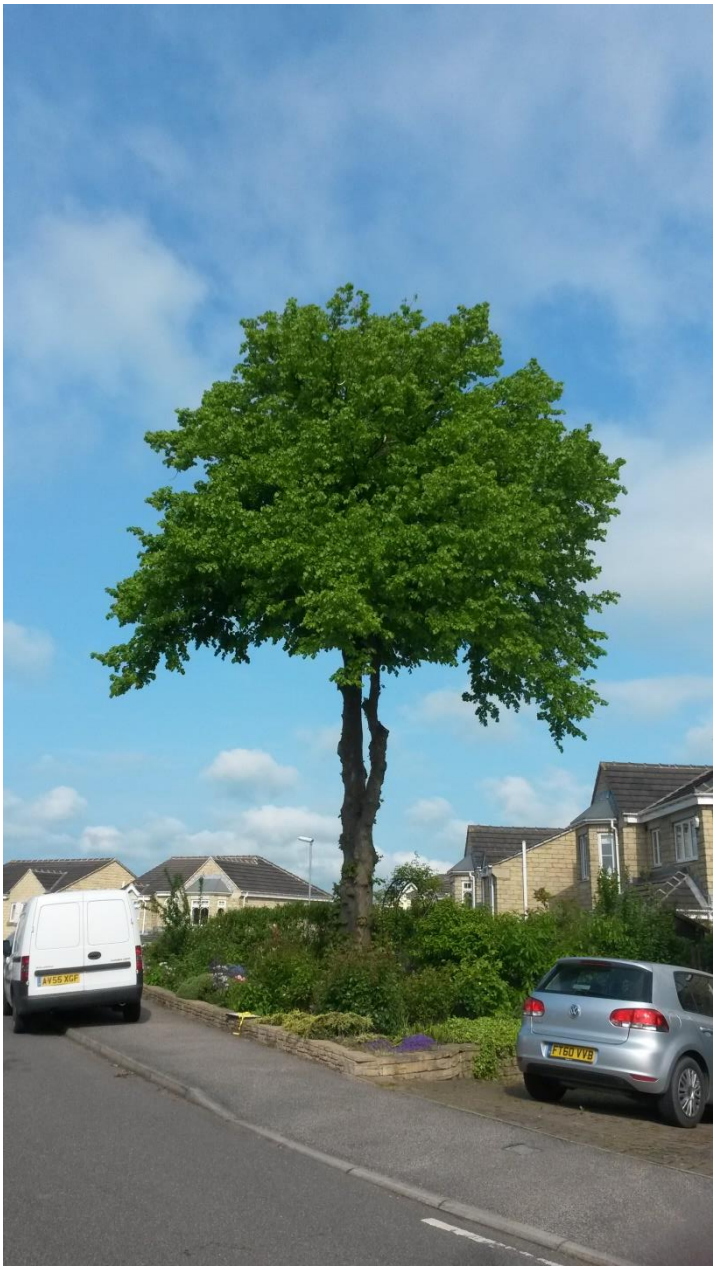

Photo 1 above: View of Lime (T1) from the roadside. The tree has been over crown lifted and appears in the streetscene as a "lollipop".

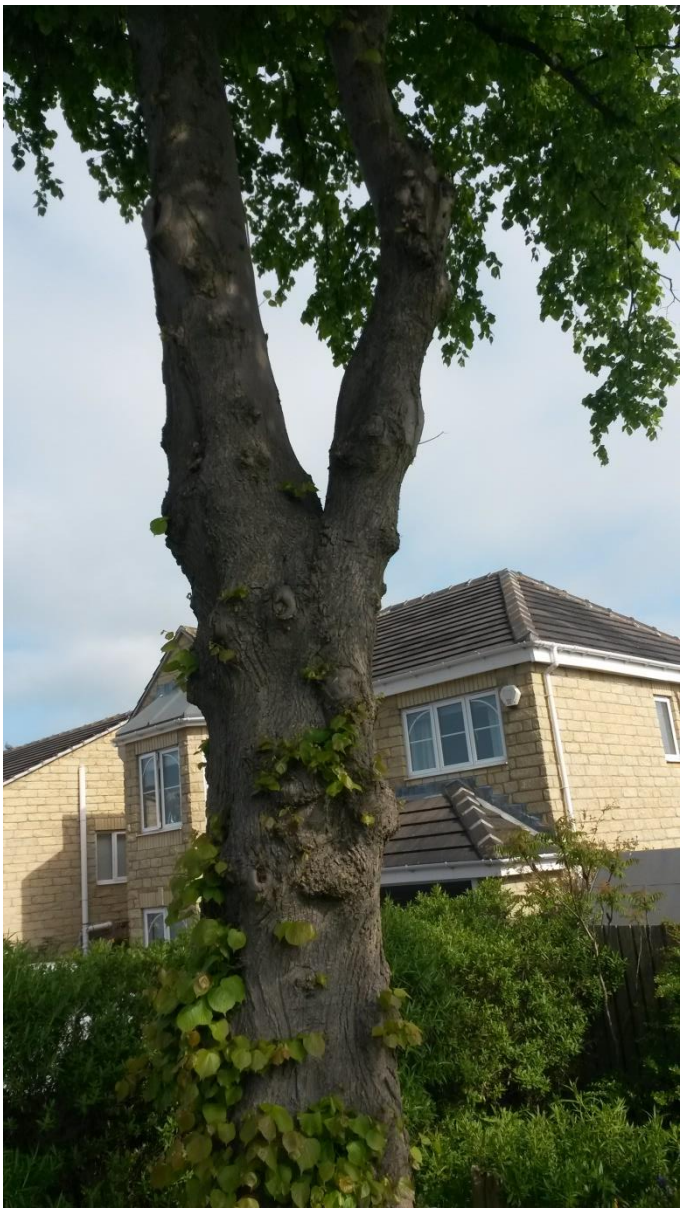

Photo 2 above: Close up of bifurcation of stem with included bark and abundance of wounding.

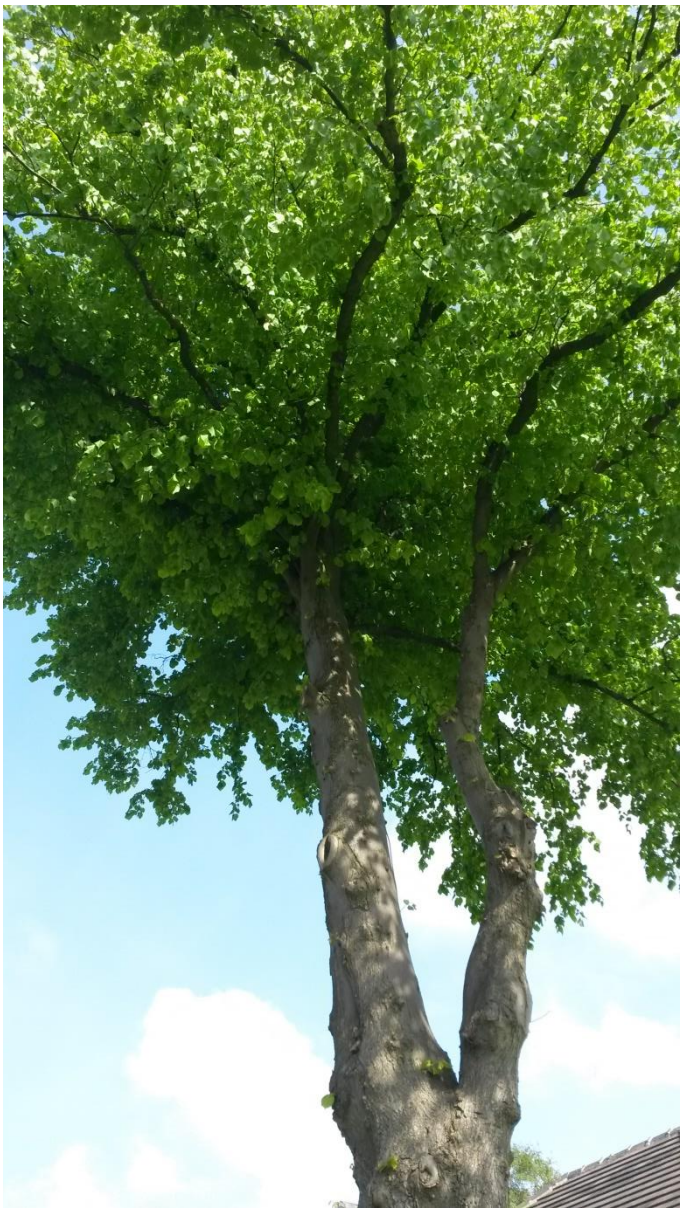

Photo 3 above: Unnaturally high canopy with tight dense framework.

General Guidelines and Terms and Conditions

1. All tree work should be carried out by qualified Arboricultural Contractors with at least £1 Million Public Liability Insurance cover. Acorn Arboriculture recommends Salter Tree Services: 01226 384854 or 07967 203471

2. Tree work must be carried out to BS 3998 which specifies recommendations for tree work.

3. The acceptance of this report constitutes an agreement with the terms and guidelines listed within this report.

4. No liability can be accepted by the consultant in respect of the trees unless the recommendations within this report are carried out under his supervision. Nor shall the consultant be responsible for events which happen after the time of the survey due to factors which were not evident at the time.

5. Tree work is inherently dangerous and should only be undertaken by insured, qualified contractors the following contractor is suitably qualified and insured to carry out tree works.

6. This report, plan and associated digital files remain the copyright of Acorn Arboriculture and the transfer of rights to any third party must be with our express written consent.

Glossary of Arboricultural Terms

Abscission. The shedding of a leaf or other short-lived part of a woody plant, involving the formation of a corky layer across its base; in some tree species twigs can be shed in this way

Abiotic. Pertaining to non-living agents; e.g. environmental factors

Absorptive roots. Non-woody, short-lived roots, generally having a diameter of less than one millimetre, the primary function of which is uptake of water and nutrients

Adaptive growth. In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stress

Adaptive roots. The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading

Adventitious shoots. Shoots that develop other than from apical, axillary or dormant buds; see also 'epicormic'

Anchorage. The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree

Architecture. In a tree, a term describing the pattern of branching of the crown or root system

Axil. The place where a bud is borne between a leaf and its parent shoot

Bacteria. Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms

Bark. A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm; occasionally applied only to the periderm or the phellem

Basidiomycotina (Basidiomycetes). One of the major taxonomic groups of fungi; their spores are borne on microscopic peg-like structures (basidia), which in many types are in turn borne on or within conspicuous fruit bodies, such as brackets or toadstools. Most of the principal decay fungi in standing trees are basidiomycetes

Bolling. A term sometimes used to describe pollard heads

Bottle-butt. A broadening of the stem base and buttresses of a tree, in
excess of normal and sometimes denoting a growth response to weakening in that region, especially due to decay involving selective delignification

Bracing. The use of rods or cables to restrain the movement between parts of a tree

Branch:

· **Primary.** A first order branch arising from a stem

· **Lateral.** A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches

· **Sub-lateral.** A third order branch, subordinate to a lateral or primary branch, or stem and usually bearing only twigs

Branch bark ridge. The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem

Branch collar. A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base

Brown-rot. A type of wood decay in which cellulose is degraded, while lignin is only modified

Buckling. An irreversible deformation of a structure subjected to a bending load

Buttress zone. The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of the junctions

Cambium. Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally

Canker. A persistent lesion formed by the death of bark and cambium dueto colonisation by fungi or bacteria

Canopy species. Tree species that mature to form a closed woodland canopy

Cleaning out. The removal of dead, crossing, weak, and damaged branches, where this will not damage or spoil the overall appearance of the tree

Compartmentalization. The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and/or active defences operating at the boundaries of the affected
region

Compression fork. An acute angled fork that is mechanically optimised for the growth pressure that two ormore adjacent stems exert on each other.

Compression strength. The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees with special drilling devices

Compressive loading. Mechanical loading which exerts a positive pressure; the opposite to tensile loading

Condition. An indication of the physiological vitality of the tree. Where the term 'condition' is used in a report, it should not be taken as an indication of the stability of the tree

Construction exclusion zone. Area based on the Root Protection Area (in square metres) to be protected during development, by the use of barriers and/or ground protection

Crown/Canopy. The main foliage bearing section of the tree

Crown lifting. The removal of limbs and small branches to a specified height above ground level

Crown thinning. The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a wellbalanced branch structure

Crown reduction/shaping. A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape

Crown reduction/thinning. Reduction of the canopy volume by thinning to remove dominant branches whilst preserving, as far as possible the natural tree shape

Deadwood. Dead branch wood

Decurrent. In trees, a system of branching in which the crown is borne on a number of major widely-spreading limbs of similar size (cf. excurrent). In fungi with toadstools as fruit bodies, the description of gills which run some distance down the stem, rather than terminating abruptly

Defect. In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment

Delamination. The separation of wood layers along their length, visible as longitudinal splitting

Dieback. The death of parts of a woody plant, starting at shoot-tips or roottips

Disease. A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms

Distal. In the direction away from the main body of a tree or subject organism (cf. proximal)

Dominance. In trees, the tendency for a leading shoot to grow faster or more vigorously than the lateral shoots; also the tendency of a tree to maintain a taller crown than its neighbours

Dormant bud. An axial bud which does not develop into a shoot until after the formation of two or more annual wood increments; many such buds persist through the life of a tree and develop only if stimulated to do so

Dysfunction. In woody tissues, the loss of physiological function, especially water conduction, in sapwood

DBH (Diameter at Breast Height). Stem diameter measured at a height of 1.5 metres (UK) or the nearest measurable point.

Where measurement at a height of 1.5 metres is not possible, another height may be specified

Deadwood. Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of species and seldom represents a threat to the health of the tree. Removal of deadwood can result in the ingress of decay to otherwise sound tissues and climbing operations to access deadwood can cause significant damage to a tree.
Removal of deadwood is generally recommended only where it represents an unacceptable level of hazard

Endophytes. Micro-organisms which live inside plant tissues without causing overt disease, but in some cases capable of causing disease if the tissues become physiologically stressed, for example by lack of moisture

Epicormic shoot. A shoot having developed from a dormant or adventitious bud and not having developed from a first year shoot

Excrescence. Any abnormal outgrowth on the surface of tree or other organism

Excurrent. In trees, a system of branching in which there is a well defined central main stem, bearing branches which are limited in their length, diameter and secondary branching (cf. decurrent)

Fastigiate. Having upright, often clustered branches

Felling licence. In the UK, a permit to fell trees in excess of a stipulated number of stems or volume of timber

Flush-cut. A pruning cut which removes part of the branch bark ridge and or branch-collar

Girdling root. A root which circles and constricts the stem or roots possibly causing death of phloem and/or cambial tissue

Guying. A form of artificial support with cables for trees with a temporarily inadequate anchorage

Habit. The overall growth characteristics, shape of the tree and branch structure

Hazard beam. An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth; prone to longitudinal splitting

Heartwood/false-heartwood/ripewood. Sapwood that has become dysfunctional as part of the natural aging processes

Heave. A term mainly applicable to a shrinkable clay soil which expands due to re-wetting after the felling of a tree which was previously extracting moisture from the deeper layers; also the lifting of pavements and other structures by root diameter expansion; also the lifting of one side of a windrocked root-plate

High canopy tree species. Tree species having potential to contribute to the closed canopy of a mature woodland or forest

Incipient failure. In wood tissues, a mechanical failure which results only in deformation or cracking, and not in the fall or detachment of the affected part

Included bark (ingrown bark). Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact

Increment borer. A hollow auger, which can be used for the extraction of wood cores for counting or measuring wood increments or for inspecting the condition of the wood

Infection. The establishment of a parasitic micro-organism in the tissues of a tree or other organism

Internode. The part of a stem between two nodes; not to be confused with a length of stem which bear nodes but no branches

Lever arm. A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch

Lignin. The hard, cement-like constituent of wood cells; deposition of lignin within the matrix of cellulose microfibrils in the cell wall is termed Lignification

Lions tailing. A term applied to a branch of a tree that has few if any side-branches except at its end, and is thus liable to snap due to endloading

Loading. A mechanical term describing the force acting on a structure from a particular source; e.g. the weight of the structure itself orwind pressure

Longitudinal. Along the length (of a stem, root or branch)

Lopping. A term often used to describe the removal of large branches from a tree, but also used to describe other forms of cutting

Mature Heights (approximate)**:**

· **Low maturing** – less than 8 metres high
· **Moderately high maturing** – 8 – 12 metres high
· **High maturing** – greater than 12 metres high

Microdrill. An electronic rotating steel probe, which when inserted into woody tissue provides a measure of tissue density

Minor deadwood. Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree

Mulch. Material laid down over the rooting area of a tree or other plant to help conserve moisture; a mulch may consist of organic matter or a sheet of plastic or other artificial material

Mycelium. The body of a fungus, consisting of branched filaments
(hyphae)

Occluding tissues. A general term for the roll of wood, cambium and bark that forms around a wound on a woody plant (cf. woundwood)

Occlusion. The process whereby a wound is progressively closed by the formation of new wood and bark around it

Pathogen. A micro-organism which causes disease in another organism

Photosynthesis. The process whereby plants use light energy to split hydrogen from water molecules, and combine it with carbon dioxide to form the molecular building blocks for synthesizing carbohydrates and other biochemical products

Phytotoxic. Toxic to plants

Pollarding. The removal of the tree canopy, back to the stem or primary
branches, usually to a point just outside that of the previous cutting.
Pollarding may involve the removal of the entire canopy in one operation, or may be phased over several years. The period of safe retention of trees having been pollarded varies with species and individuals. It is usually necessary to re-pollard on a regular basis, annually in the case of some species

Primary branch. A major branch, generally having a basal diameter greater than 0.25 x stem diameter

Primary root zone. The soil volume most likely to contain roots that are critical to the health and stability of the tree and normally defined by reference BS5837 (2012)

Probability. A statistical measure of the likelihood that a particular event might occur

Proximal. In the direction towards from the main body of a tree or other living organism (cf. distal)

Pruning. The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs

Radial. In the plane or direction of the radius of a circular object such as a tree stem

Rams-horn. In connection with wounds on trees, a roll of occluding tissues which has a spiral structure as seen in cross-section

Rays. Strips of radially elongated parenchyma cells within wood and bark.
The functions of rays include food storage, radial translocation and contributing to the strength of wood

Reactive Growth/Reaction Wood. Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth)

Removal of dead wood. Unless otherwise specified, this refers to the removal of all accessible dead, dying and diseased branchwood and broken snags

Removal of major dead wood. The removal of, dead, dying and diseased branchwood above a specified size **Respacing.** Selective removal of trees from a group or woodland to provide space and resources for the development of retained trees.

Residual wall. The wall of non-decayed wood remaining following decay of internal stem, branch or root tissues

Ring-barking (girdling)**.** The removal of a ring of bark and phloem around the circumference of a stem or branch, normally resulting in an inability to transport photosynthetic assimilates below the area of damage. Almost inevitably results in the eventual death of the affected stem or branch above the damage.

Root-collar. The transitional area between the stem/s and roots

Root-collar examination. Excavation of surfacing and soils around the root-collar to assess the structural integrity of roots and/or stem

Root protection area. An area of ground surrounding a tree that contains sufficient rooting volume to ensure the tree's survival. Calculated with reference BS5837 (2012) and shown in plan form in square metres

Root zone. Area of soils containing absorptive roots of the tree/s described.
The **Primary** root zone is that which we consider of primary importance to the physiological well-being of the tree

Sapwood. Living xylem tissues

Secondary branch. A branch, generally having a basal diameter of less than 0.25 x stem diameter

Selective delignification. A kind of wood decay (white-rot) in which lignin is degraded faster than cellulose

Shedding. In woody plants, the normal abscission, rotting off or sloughing of leaves, floral parts, twigs, fine roots and bark scales

Silvicultural thinning. Removal of selected trees to favour the development of retained specimens to achieve a management objective

Simultaneous white-rot. A kind of wood decay in which lignin and
cellulose are degraded at about the same rate

Snag. In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snag usually tends to die back to the nearest growing point

Soft-rot. A kind of wood decay in which a fungus degrades cellulose within the cell walls, without any general degradation of the wall as a whole

Spores. Propagules of fungi and many other life-forms; most spores are microscopic and dispersed in air or water

Shrub species. Woody perennial species forming the lowest level of woody plants in a woodland and not normally considered to be trees

Sporophore. The spore bearing structure of fungi

Sprouts. Adventitious shoot growth erupting from beneath the bark

Stem/s. The main supporting structure/s, from ground level up to the first major division into branches

Stress. In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature

Stress. In mechanics, the application of a force to an object

Stringy white-rot. The kind of wood decay produced by selective delignification

Storm. A layer of tissue which supports the fruit bodies of some types of fungi, mainly ascomycetes

Structural roots. Roots, generally having a diameter greater than ten millimetres, and contributing significantly to the structural support and stability of the tree

Subsidence. In relation to soil or structures resting in or on soil, a sinking due to shrinkage when certain types of clay soil dry out, sometimes due to extraction of moisture by tree roots

Subsidence. In relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight

Taper. In stems and branches, the degree of change in girth along a given length

Target canker. A kind of perennial canker, containing concentric rings of dead occluding tissues

Targets. In tree risk assessment (with slight misuse of normal meaning)
persons or property or other things of value which might be harmed by
mechanical failure of the tree or by objects falling from it

Topping. In arboriculture, the removal of the crown of a tree, or of a major proportion of it

Torsional stress. Mechanical stress applied by a twisting force

Translocation. In plant physiology, the movement of water and dissolved materials through the body of the plant

Transpiration. The evaporation of moisture from the surface of a plant,
especially via the stomata of leaves; it exerts a suction which draws water up from the roots and through the intervening xylem cells

Understorey. A layer of vegetation beneath the main canopy of woodland or forest or plants forming this

Understorey tree species. Tree species not having potential to attain a size at which they can contribute to the closed high canopy of a woodland

Vascular wilt. A type of plant disease in which water-conducting cells
become dysfunctional

Vessels. Water-conducting cells in plants, usually wide and long for hydraulic efficiency; generally not present in coniferous trees

Veteran tree. A loosely defined term for an old specimen that is of interest biologically, culturally or aesthetically because of its age, size or condition and which has usually lived longer than the typical upper age range for the species concerned

Vigour. The expression of carbohydrate expenditure to growth (in trees).

Vitality. A measure of physiological condition expressed through the health and growth of foliage, shoots and adaptive woody tissues.

White-rot. A range of kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded

Wind exposure. The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity

Wind pressure. The force exerted by a wind on a particular object

Windthrow. The blowing over of a tree at its roots

Wound dressing. A general term for sealants and other materials used to cover wounds in the hope of protecting them against desiccation and infection; only of proven value against fresh wound parasites

Woundwood. Wood with atypical anatomical features, formed in the vicinity of a wound

We trust that this report provides all the necessary information although if further advice is needed please do not hesitate to contact us.

Dated……08/06/2016

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