



TREE SURVEY

AT

ROYAL LIVERPOOL UNIVERSITY HOSPITAL
LIVERPOOL

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Date: 23 November 2011
Ref: TRE/RLUH



1.0 Introduction

- 1.1 The purpose of this report is to carry out a site visit, identify and survey the principal trees on the site.
- 1.2 The survey on which the findings of this report are based was undertaken on Wednesday the 23 November 2011.
- 1.3 This report should be read in conjunction with the attached location plan in Appendix One.
- 1.4 The reference to the left and right hand assumes a viewing position from the public highway, and facing the property.
- 1.5 The limitations of this report are restricted to the persons, time, information made available and purpose for which this report has been prepared.

2.0 **Findings**

- 2.1 The principal trees have been surveyed and plotted individually to assess their health and dimensions. To give assistance in reading the findings the following glossary has been produced.

Arboricultural Glossary Of Terms

The following terms are concurrent with best Arboricultural practice and within the guidelines set by the International Society of Arboriculture (ISA), the Arboricultural Association (AA) and the British Standards Institute (BSI).

Age Range:	Age is site specific and categorised:
Young (Y)	Out-planted trees that have not yet established.
Semi-Mature (SM)	Established trees up to 1/3 of expected height and crown.
Early Mature (EM)	Between 1/3 and 2/3 of expected height and crown.
Mature (M)	Between 2/3 and full expected height and crown.
Fully Mature (FM)	Full expected height and crown.
Over Mature (OM)	Crown beginning to break-up and decrease in size.
Senescent (S)	Crown in advanced stage of break-up.

Height: Height is estimated and recorded in metres.

DBH: Diameter at Breast Height is measured at 1.5m and recorded in metres. Where a tree becomes multi-stemmed below 1.5m the highest possible diameter is measured and indicated. Alternatively, above 1.5m the diameter of each stem or an average diameter is measured and indicated.

Condition - Assessment of current physiological condition and structural morphology incorporating vigour and vitality and categorised:

- A - Tree needing little, if any attention
- B - Tree with minor, but rectifiable defects, or in the early stages of physiological stress
- C - Tree with significant structural and physiological flaws and/or extremely stressed
- D - Tree that is dead, biologically/physically moribund or dangerous

Desirability To Retain – As Outlined in Table 1 of BS 5837:2005 (Trees in Relation to Construction - Recommendations)

Definition Of Physiological & Morphological Terms

Adaptive Growth - The process whereby wood formation is influenced both in quantity and in quality by the action of gravitational force and mechanical stresses on the cambial zone.

Bifurcation – Forked or divided union.

Brown Rot - Form of decay where cellulose is degraded, while lignin is only modified.

Cankers (target or tumorous) - 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 wound, characterised by the presence of extensive decay and resulting in a hollow.

Chlorotic Leaf - Lacking in chlorophyll, typically yellow in colour.

Compartmentalisation - The physiological process that creates the chemical and mechanical boundaries that act to limit the spread of disease and decay organisms.

Crack - Longitudinal split in stem or branch, involving bark and/or underlying wood. These may be vertically and horizontally orientated.

Decay - Process of degradation of woody tissues by fungi and bacteria through decomposition of cellulose and lignin.

Deadwood - Deadwood is often present within the crown or on the stems of trees. In some instances it 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.).

End Weight - The concentration of foliage at the distal ends of stems and deficient in secondary branches.

Girdling Root - Root which circles and constricts the stem or roots causing death of phloem and/or cambial tissue.

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).

Included Bark Union - Pattern of development at branch junctions where bark is turned inward rather than pushed out. Potential weakness due to a lack of a woody union.

Ivy Growth - Ivy growth may ascend into the tree's crown, increasing wind resistance, concealing potential defects and reducing the tree's photosynthetic capacity. Ivy growth is often acceptable in woodland areas as a conservation benefit.

Live Crown Ratio - The relative proportion of photosynthetic mass (leaf area) to overall tree height.

Reaction Wood - Specialised secondary xylem, which develops in response to a lean or similar mechanical stress, attempting to restore the stem to the vertical.

Root Plate Lift - The physical movement of the rooting plate causing soils to shift and crack. May occur during adverse weather conditions. Trees may become unstable.

Structural Defect - Internal or external points of weakness, which reduce the stability of the tree.

Suppressed - Trees which are dominated by surrounding vegetation and whose crown development is restricted from above.

Topping - A highly disfiguring practise, likely to cause severe xylem dysfunction and decay in major structural parts of the wood.

White Rot - Form of decay where both cellulose and lignin are degraded.

Wound - Any injury, which induces a compartmentalisation response.

Woundwood - Wood with atypical anatomical features, formed in the vicinity of a wound and a term to describe the occluding tissues around a wound as opposed to the ambiguous term "callus."

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.

Note: The definitions described above, may not necessarily be included within the Arboricultural Survey Data.

Arboricultural Data Sheet: Royal Liverpool University Hospital, Liverpool									Date of Survey: 23/11/11	Surveyor: C. Salisbury		
Tree No.	Species	Dbh (mm)	Height (m)	Age	Crown Spread (m)				Condition rating	Comments and preliminary management recommendations	Estimated remaining contribution	Tree quality category rating
					N	E	S	W				
T1	Cherry	310	6.20	EM	2.4	3.6	4.4	2.8	B	A co-dominant specimen with reasonable form situated adjacent to car parking. – Remove stake and tie	20 – 40	C2
T2	Cherry	180	4.30	EM	4.2	2.3	0.4	2.4	C	An individual specimen in decline. - Fell	10 – 20	R
T3	Maple	220	7.60	SM	2.3	3.9	2.3	1.8	B	An individual specimen with reasonable form situated adjacent to car parking.	40 – 60	C2
T4	Birch	110	3.20	Y	1.1	1.0	0.9	1.1	B	An individual specimen with reasonable form situated in a shrub bed.	40 – 60	C2
T5	Ash	230	11.00	EM	3.3	3.4	1.9	2.2	D	An individual specimen in extensive decline. - Fell	0 – 10	R
T6	Maple	370	9.20	EM	5.7	5.4	5.0	2.6	B	An individual specimen with reasonable form situated adjacent to a access road and a highway.	40 – 60	B2
T7	Birch	220	7.20	EM	2.3	4.6	2.9	1.8	B	An individual specimen with reasonable form situated adjacent to car parking.	40 – 60	B2
T8	Whitebeam	410	6.40	M	4.1	5.0	4.9	4.8	B	A co-dominant specimen with a natural lean situated adjacent to a footpath and car parking.	20 – 40	B2
T9	Whitebeam	330	6.40	M	6.3	5.8	4.7	3.8	B	A co-dominant specimen with poor form and a natural lean situated adjacent to a footpath and car parking.	20 – 40	B2
T10	Alder	380	15.60	EM	5.7	4.0	5.1	3.8	B	A co-dominant specimen with reasonable form. – Crown lift to 3m	40 – 60	B2

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					N	E	S	W				
T11	Whitebeam	320	7.40	M	3.0	3.6	2.3	3.0	B	An individual specimen with reasonable form.	20 – 40	B2
T12	Whitebeam	370	8.60	M	4.2	3.3	4.0	3.6	B	An individual specimen with reasonable form situated adjacent to a highway.	20 – 40	B2
T13	Rowan	160	4.20	SM	2.0	2.2	1.6	2.0	B	An individual specimen with reasonable form situated adjacent to car parking.	40 – 60	C2
T14	London Plane	340	12.60	EM	5.7	6.9	3.4	3.6	B	A co-dominant specimen with reasonable form situated adjacent to a highway and car parking. – Crown lift to 3.5m	40 – 60	B2
T15	Cherry	100	3.80	SM	2.7	2.1	2.5	2.3	B	An individual specimen with reasonable form.	40 – 60	B2
T16	Oak	390	12.00	EM	5.8	5.2	6.4	4.3	B	A co-dominant specimen with reasonable form.	60 – 80	B2
T17	Beech	260	8.40	SM	3.3	2.3	2.3	3.6	C	A twin-stemmed specimen with poor form situated adjacent to an access road.	20 – 40	C2
G1	2 x Birch	310 avg.	12.60 avg.	EM	-	-	-	-	B	A group with reasonable form situated adjacent to a highway and car parking. – Crown lift to 3m	40 – 60	B2
G2	9 x Plum	250 avg.	9.60 avg.	EM	-	-	-	-	B/C	A poor quality group situated adjacent to a highway. – Crown lift to 3m and remove 1 No. tree with Ganoderma	20 – 40	B2
G3	7 x Plum	270 avg.	9.60 avg.	EM	-	-	-	-	B/C	A poor quality group situated adjacent to a highway and car parking. – Crown lift to 3m	20 – 40	C2

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					N	E	S	W				
G4	11 x Plum	290 avg.	8.40 avg.	EM	-	-	-	-	B/C	A poor quality group situated adjacent to a highway and car parking. – Crown lift to 3m	20 – 40	B2
G5	2 x Maple & 1 x Cherry	240 avg.	8.40 avg.	EM	-	-	-	-	B	A mixed species group situated adjacent to a highway.	40 – 60	B2
G6	3 x Plum	260 avg.	7.80 avg.	EM	-	-	-	-	B/C	A poor quality group situated adjacent to a highway and car parking. – Crown lift to 3m	20 – 40	B2
G7	4 x Plum	230 avg.	8.00 avg.	EM	-	-	-	-	B	A poor quality group situated adjacent to a highway and car parking. – Crown lift to 3m	20 – 40	B2
G8	2 x Maple	180 avg.	6.40 avg.	SM	-	-	-	-	B	A group with reasonable form situated adjacent to a highway and car parking.	40 – 60	C2
G9	2 x Ash	90 avg.	4.80 avg.	Y	-	-	-	-	B	A group with reasonable form situated adjacent to an access road and car parking.	60 – 80	C2
G10	3 x Maple	460 avg.	10.00 avg.	EM	-	-	-	-	B	A group with reasonable form situated adjacent to car parking. – Crown lift to 3.5m	40 – 60	B2
G11	4 x Maple & 3 x Conifer	400 avg.	11.20 avg.	EM	-	-	-	-	B	A mixed species group with reasonable form situated adjacent to car parking. – Crown lift to 3m	40 – 60	B2
G12	2 x Maple	210 avg.	6.40 avg.		-	-	-	-	B/D	A group situated adjacent to car parking. – Fell 1 No. dead Maple	40 – 60	C2
G13	3 x Maple	250 avg.	6.60 avg.		-	-	-	-	B	A group with reasonable form situated adjacent to car parking. – Crown lift to 3m and clear street furniture	40 – 60	C2

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					N	E	S	W				
G14	1 x Alder & 1 x Conifer	170 avg.	6.00 avg.	SM	-	-	-	-	C	A heavily suppressed mixed species group.	20 – 40	C2
G15	5 x London Plane & 2 x Cherry	320 avg.	12.60 avg.	EM	-	-	-	-	B	A mixed species group with reasonable form situated adjacent to car parking. – Crown lift to 3m	40 – 60	B2
G16	8 x Maple & 2 x Cherry	250 avg.	13.00 avg.	EM	-	-	-	-	B/C	A mixed species group with reasonable form situated adjacent to car parking. – Crown lift to 3m	40 – 60	B2
G17	4 x Maple & 1 x Whitebeam	220 avg.	12.6 avg.	SM	-	-	-	-	B/C	A mixed species group with reasonable form situated adjacent to car parking and a highway. – Crown lift to 3m and fell 1 No. Whitebeam with extensive stem decay	40 – 60	B2
G18	3 x London Plane	410 avg.	14.80 avg.	EM	-	-	-	-	B	A group with reasonable form situated adjacent to car parking and a highway. – Crown lift to 3.5m	40 – 60	B2
G19	14 x London Plane & 9 x Maple	280 avg.	14.80 avg.	EM	-	-	-	-	B	A mixed species group with reasonable form situated adjacent to car parking and a highway. – Crown lift to 3.5m	40 – 60	B2
G20	2 x Whitebeam	190 avg.	4.20 avg.	EM	-	-	-	-	C	A poor quality group with basal damage.	20 – 40	C2
G21	8 x Ash	250 avg.	14.00 avg.	SM	-	-	-	-	B	A group with reasonable form.	60 – 80	B2
G22	5 x Maple, 5 x Ash & 2 x Whitebeam	230 avg.	11.80 avg.	EM	-	-	-	-	B	A mixed species group situated adjacent to an access road.	60 – 80	B2

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					N	E	S	W				
G23	1 x Oak & 1 x Ash	260 avg.	9.80 avg.	SM	-	-	-	-	B	A mixed species group situated adjacent to an access road.	60 – 80	B2
G24	11 x Ash, 9 x London Plane & 1 x Cherry	340 avg.	12.60 avg.	EM	-	-	-	-	B	A mixed species group with reasonable form.	60 – 80	B2
G25	6 x Ash & 3 x Oak	230 avg.	12.80 avg.	EM	-	-	-	-	B	A mixed species group situated adjacent to an access road.	60 – 80	B2
G26	5 x Maple	250 avg.	10.20 avg.	EM	-	-	-	-	B/C	A mixed species group situated adjacent to an access road showing early signs of decline.	20 – 40	C2
G27	6 x Ash & 2 x London Plane	330 avg.	12.80 avg.	EM	-	-	-	-	B	A mixed species group with reasonable form situated adjacent to car parking.	40 – 60	B2
G28	4 x Whitebeam	330 avg.	8.20 avg.	M	-	-	-	-	B	A group with reasonable form situated adjacent to a highway and car parking.	20 – 40	B2
G29	2 x Whitebeam	340 avg.	8.40 avg.	M	-	-	-	-	C	A group with poor form situated adjacent to an access road.	10 – 20	C2
G30	2 x Birch, 1 x Whitebeam & 1 x Maple	190 avg.	5.80 avg.	SM	-	-	-	-	B	A mixed species group situated adjacent to an access road.	20 – 40	C2
G31	2 x Maple	320 avg.	10.20 avg.	EM	-	-	-	-	B	A group situated in close proximity to property and adjacent to car parking. – Reduce property side	20 – 40	C2
G32	2 x Cherry	190 avg.	5.80 avg.	EM	-	-	-	-	B	A group situated in close proximity to property. – Reduce property side	20 – 40	C2

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					N	E	S	W				
G33	4 x Plum	50 avg.	3.20 avg.	Y	-	-	-	-	B/C	A recently planted avenue situated adjacent to car parking. – Replace 1 No. Plum in decline	40 – 60	C2

Trees for removal			
Category and definition	Criteria		
Category R Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	<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 R category trees (i.e. 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 declineTrees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality Note – Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).		
Trees to be considered for retention			
Category and definition	Criteria - Subcategories		
	1 Arboriculture values	2 Landscape values	3 Conservation values
Category A Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboriculture features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood pasture)
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboriculture features (e.g. trees of moderate quality within avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits
Category C Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits
	Note - Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation		

APPENDIX ONE