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TREE SURVEY REPORT
AND ARBORICULTURAL
ADVICE

LAND OFF KIDNAPPERS
LANE, CHELTENHAM

Report Record

Project number:	18129
Project name:	Land off Kidnappers Lane, Cheltenham
Client:	Robert Hitchins

Report status

Issue number:	Report status:	Date:	Prepared by:	Checked by:
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1 INTRODUCTION

1.1 Background

1.1.1 Planning permission is to be sought for residential development and associated infrastructure on land off Kidnappers Lane, Cheltenham; hereafter referred to as 'the site'.

1.2 Site details

1.2.1 In general terms, the current land use at the site consists of a semi-derelict area of land that was in previous use as a garden centre/plant nursery.

1.2.2 For location purposes, the site can be located using the following information:

- Nearest postcode: GL53 0NX
- OS Grid reference: SO 94039 19850

1.3 Instruction and scope

1.3.1 I am instructed by Robert Hitchins to visit the site and to carry out an assessment of arboricultural features in accordance with British Standards (BS) 5837:2012 'Trees in Relation to Design Demolition and Construction – Recommendations'.

1.3.2 I am to prepare the following information in relation to the planning application:

- Tree survey schedule of findings and Tree Constraints Plan
- Preliminary advice relating to arboricultural constraints and opportunities in the context of the proposed potential land use.

1.4 Limitations

1.4.1 My survey and assessment relates only to the scope of my instruction. It does not assess the following factors:

- Risk of harm caused by trees
- Potential for woody vegetation-related ground subsidence and/or heave

1.4.2 In some instances, I have been unable to access or clearly observe the bases of trees due to, for example, the presence of dense vegetation or built structures. Where this is the case, I have made my best endeavours to accurately estimate dimensions and tree condition.

1.4.3 Trees are living organisms and self-supporting dynamic structures. Their physiological and structural condition can change rapidly in response to a wide range of biotic/abiotic factors. As such, the observations and recommendations within this document are limited to a timeframe of 24 months from the date of my site visit.

1.5 Statutory tree protection

1.5.1 I have contacted Cheltenham Borough Council¹ and it has been confirmed to me that the site is not located within a Conservation Area and that none of the trees on the site are protected by Tree Preservation Order (TPO).

1.5.2 As such there are no controls in place with regard to statutory tree protection at the site.

1.6 Wildlife

1.6.1 No site works must be carried out before a suitably detailed inspection of relevant trees has been carried out to determine the presence of bat roosts and/or bird nests.

1.6.2 The Arboricultural Association publishes useful advice in relation to trees and nesting birds².

1.6.3 Helpful advice with regards to bats and tree work is published by the UK Government³,

¹ Email communication at 16.02 hrs 17.09.18

² <https://www.trees.org.uk/Help-Advice/Public/When-is-the-bird-nest-season>

³ <https://www.gov.uk/guidance/bats-protection-surveys-and-licences>

the Arboricultural Association⁴ and The Bat Conservation Trust⁵.

⁴ <https://www.trees.org.uk/Help-Advice/Public/Bats-and-trees-Who-does-what-where>

⁵ http://www.bats.org.uk/data/files/publications/Bats_Trees.pdf

2 ARBORICULTURAL SURVEY

2.1 Site visit

2.1.1 I visited the site on 10th September 2018.

2.2 Findings

2.2.1 My findings are set out within the survey schedule at **Appendix 1**.

2.2.2 The Tree Survey and Constraints Plan also identifies the above and below ground constraints that are posed by the arboricultural features. Refer to Section 3 for further information.

2.2.3 The arboricultural features associated with the interior of the site are generally of low quality and value. The most notable feature within the interior of the site is a group of three early mature trees that are of limited merit: two poplar trees have extensive canker whilst one further maple tree has developed a series of tight unions between its main limbs which will limit the structural viability of the tree in the medium term.

2.2.4 There are a series of well-established hedges and screens at the edges of the site. Generally, these are in reasonable condition and (subject to appropriate management) can be retained for a reasonable period.

3 TREE SURVEY AND CONSTRAINTS PLAN

3.1 Tree Constraints Plan

3.1.1 The constraints posed by the surveyed arboricultural features on site that I consider to be relevant to the proposed development are shown on the Tree Survey and Constraints Plan at **Appendix B**.

3.2 Below Ground Constraints

3.2.1 In accordance with BS5837:2012, below ground constraints, or Root Protection Areas (RPAs), for the surveyed trees are plotted onto the Tree Survey and Constraints Plan. These are represented as a circle with a broken red line centred on the base of each tree stem with a radius of 12 times stem diameter measured at 1.5m above ground level. If a tree has veteran or ancient status (3.4), the radial distance is increased to 15 times stem diameter, or to 5m beyond the edge of the edge of the tree crown if this distance is greater⁶.

3.2.2 BS5837:2012, a root protection area (RPA) is defined as *"a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure should be treated as a priority". "The default position [when considering design layout in relation to RPAs] should be that structures are located outside the RPAs of trees to be retained"*.

3.2.3 Root systems can be damaged in several ways:

- Severance of a root will destroy all parts of the root beyond that point. The larger the root severed, the greater the impact on the tree. If roots are damaged close to the trunk, the anchorage and stability of the tree can be affected

⁶ <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences#veteran-trees> Accessed 06.07.18

- The root bark protects the root from decay and is also essential for further root growth. If damage to the bark extends around the whole circumference, the root beyond that point will be killed
- Soil compaction, which may occur from storage of material or passage of heavy equipment over the root area, can restrict and even prevent gaseous diffusion through the soil, and thereby asphyxiate the roots. The roots must have oxygen for survival, growth and effective functioning
- Lowering the soil level will strip out the mass of roots near the surface
- Raising soil levels will have the same effect as soil compaction
- Incorrect selection and application of herbicide
- Spillage of oils or other harmful materials.

3.3 Above Ground Constraints

3.3.1 Above ground constraints posed by trees describe the capacity for trees to have an overbearing or dominating effect on new developments; usually post occupancy. Typical above ground constraints include a number or combination of inconveniences including shading, branch spread, perceived fear of tree failure during strong winds and so on. If not adequately considered, above ground constraints can lead to repeated future requests to fell or heavily prune retained and protected trees.

3.3.2 The above ground parts of trees can be damaged in several ways:

- Impact damage through contact with construction site plant
- Inappropriate pruning
- Other factors, for example, heat damage caused by bonfires.

4 ARBORICULTURAL OPPORTUNITIES AND KEY CONSTRAINTS

4.1 Opportunities

- 4.1.1 The majority of arboricultural features associated with the site are situated at its perimeters. As such, the existing trees and hedges have considerable potential to be able to screen and filter views of any new development that takes place within the interior.
- 4.1.2 The interior of the site contains only three trees that are generally of low quality and value. Such trees can be adequately compensated for by means of new tree planting. As such, there are no arboricultural constraints within the centre of the site that are substantial enough to act as material constraints to development.
- 4.1.3 The lack of trees within the site interior means that there is excellent scope to introduce sustainable new tree planting to the interior of the site as part of new design proposals.
- 4.1.4 Potential for new tree planting provides the opportunity to greatly enhance the quality and value of the development. The site presents an opportunity for the design process to integrate sustainable green infrastructure to include effective tree cover.
- 4.1.5 A well-designed tree planting scheme also has potential to diversify the existing tree species mix associated with the site. This will lead to a more sustainable tree population over time.

4.2 Key Constraints

- 4.2.1 The design process must consider both the below and the above ground constraints that are shown on the Tree Survey and Constraints Plan if it is to achieve development that is sustainable from an arboricultural perspective. In particular, due consideration must be given to the following general points:
- Creation of new structures within RPAs, especially those of trees that have high or moderate value, must be avoided

- If construction within RPAs cannot be avoided, the design must seek to mitigate by use of lightweight structures only wherever possible. Also, the design should seek to utilise foundations that are less likely to cause damage to tree roots, for example, Surefootings⁷.
- Where new hard surfacing is required within RPAs it must not exceed 20% of the overall individual RPA (as recommended by BS5837:2012. Also, the suitability of the ground in relation to the use of a root-protecting cellular confinement load distributing system for hard surface construction, for example, Cellweb,⁸ should be assessed by a suitably qualified engineer.
- Structures must be situated and orientated so that trees do not cause overbearing effects on future occupiers of the development. Where practicable dwellings and gardens should be designed to only slightly encroach into the indicative shade patterns that are shown on the Tree Survey and Constraints Plan
- Adequate space must be incorporated into the layout to afford new trees adequate space in which to mature without conflicting with structures in the future.

4.2.2 The RPAs of offsite trees (T2-T5 & H4) encroaches into site and have potential to be disturbed by engineering works associated with development of the site. The design should seek to minimise the encroachment into the RPAs of these features. As such, due consideration should be given to maintaining the northernmost part of the site as green space.

⁷ <http://surefootfootings.co.uk/>

⁸ <http://www.geosyn.co.uk/product/cellweb-tree-root-protection>

5 CONCLUSION

5.1.1 I conclude that the site is suitable for development, provided that the arboricultural constraints that have been highlighted within this report are suitably incorporated into design proposals. For the following reasons:

- There are no arboricultural constraints within the majority site that cannot be suitably compensated for by the planting of new trees.
- Arboricultural constraints have been identified on a Tree Constraints Plan. This can be used to allow adequate space within design proposals to minimise impacts on more significant offsite trees at the northernmost point of the site.
- The site presents considerable opportunity for sustainable new tree planting which can be used to greatly enhance the existing arboricultural qualities of the site.

6 RECOMMENDATION

6.1.1 Having carried out a comprehensive assessment of the site's arboricultural characteristics, I recommend that:

- Subsequent design work relating to the development of the site makes use of the information shown on the Tree Constraints Plan and detailed within Section 4.2 of this report to achieve an effective spatial relationship between trees and new buildings.
- Any subsequent planning application is, in accordance with BS5837:2012, supported by a suitable Arboricultural Impact Assessment, Tree Protection Plan and heads of terms for an Arboricultural Method Statement to demonstrate the feasibility of proposals.

7 APPENDIX A – TREE SURVEY SCHEDULE

TREES

Ref	Common name	Height (m)	Est	Stem dia (mm)	Est	N	Est	E	Est	S	Est	W	Est	Estimated first branch height (m)	1st branch direction	Estimated canopy height (m)	Life stage	Special status	General observations & management recommendations	Struct. cond.	Phys. cond.	ULE	Quality grading	RPA radius (m)	RPA area (m2)	TPO
T1	Norway maple 'Crimson King'	6		160	#	3	#	3	#	4	#	3	#	1	NE	2	SM	None	Incongruous species on boundary	Fair	Good	10+	C1	2	12	None
T2	English oak	9	#	750	#	5	#	4	#	5		5	#	3	S	2.5	M	None	Offsite tree with trunk approximately 1m from boundary. Tree has previously been topped/structurally failed at approximately 8m. Numerous cavities. Unable to observe base.	Fair	Good	20+	B1	9	254	None
T3	Common ash	13	#	300	#	4	#	8	#	7	#	7	#	2	E	3	EM	None	Canopy closure with adjacent tree to north. On boundary. Sparse foliage - possible ash dieback.	Fair	Fair	10+	C1	4	41	None
T4	Common ash	14	#	270	#	5	#	7	#	3	#	6	#	3	E	3	EM	None	Canopy closure with adjacent tree to south. On boundary. Sparse foliage - possible ash dieback.	Fair	Fair	10+	C1	3	33	None
T5	Common ash	13	#	650	#	6	#	7	#	7	#	5	#	1	SW	2	M	None	In corner of site. Dense ivy. Becomes multi stemmed at approximately 2m	Fair	Good	20+	B1	8	191	None
T6	Populus x canadensis 'Aurea'	14	#	400	#	5	#	4	#	6	#	5	#	1	SW	3	EM	None	Heavily cankered with excessive dieback throughout crown. Not really viable in context of proposed land use.	Poor	Poor	<10	U	5	72	None
T7	Acer pseudo-platanus 'Spaethii'	15	#	450	#	6	#	7	#	5	#	5	#	1.5	SW	3	EM	None	Numerous included unions between main limbs at approximately 3m height will limit longer term viability.	Fair	Good	10+	C1	5	92	None
T8	Populus x canadensis 'Aurea'	14	#	400	#	6	#	3	#	2	#	2	#	4	N	6	EM	None	Excessive crown dieback. Unviable tree in context of proposed land use.	Poor	Poor	<10	U	5	72	None

HEDGEROWS

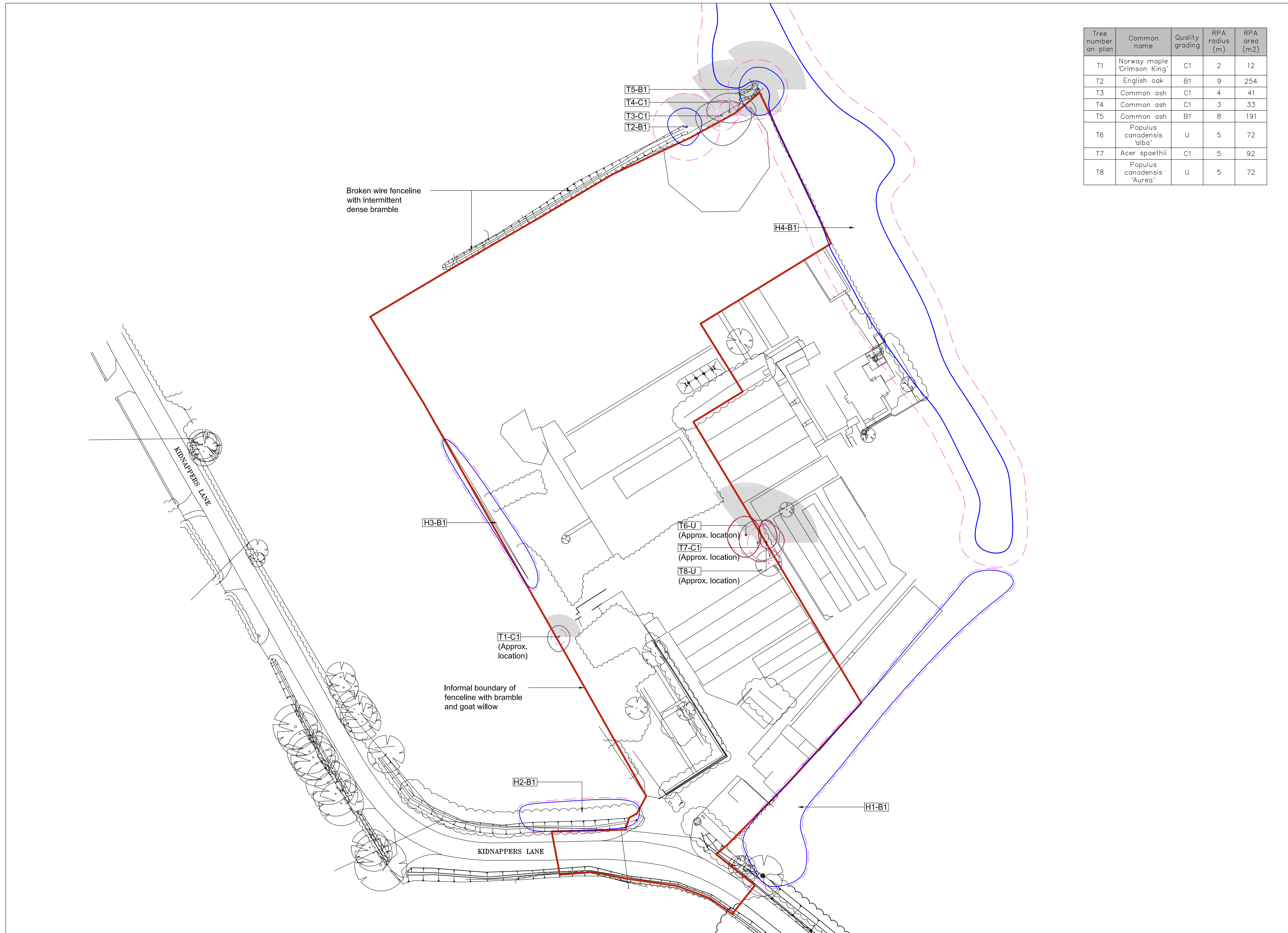
Ref	Common names of woody species present	Estimated average height (m)	Estimated average lateral spread (m)	Estimated average canopy height (m)	Life stage	Special status	General observations & management recommendations	Struct. cond.	Phys. cond.	ULE	Quality grading	RPA radius from canopy edge (m)
H1	Hawthorn, dog rose, common ash, hazel, elder,	5	4	0.5	M	None	Well established with compact form. Dense ivy in many parts. Would benefit from proactive management.	Fair	Good	20+	B1	1
H2	Leyland Cypress 'Castwellan Gold'	8	5	0.5	EM	None	Compact screen of reasonably uniform appearance. Considerable scope for future growth and will require regular proactive management if it is to be retained.	Fair	Good	20+	B1	1
H3	Leyland Cypress 'Castwellan Gold'	6	3	0.5	SM	None	Possibly offsite. Uniform screen, associated with previous nursery land use. Will require regular proactive management in liaison with landowner if to be retained. If allowed to grow unchecked, it has considerable scope to dominate nearby residential development.	Fair	Good	20+	B1	1
H4	Damson, hawthorn, common ash, blackthorn	7	5	0.5	M	None	Hedgerow managed by flailing on site side. Forms a dense screen. Connects to offsite tree group beyond (unable to observe)	Fair	Good	20+	B1	1

KEY

Assessment criteria	Description
Reference number on plan	T: Tree, G: Group, W: Woodland, H: Hedgerow. This reference is recorded on the Tree Survey and Constraints Plan against the relevant survey item.
Common name (Scientific name)	Common names: normal type. Scientific names where required: italic type in brackets
Heights	Unit: metres (m). Recorded to the nearest half metre for heights upto 10m and to the nearest whole metre for heights above 10m.
Stem diameter	Unit: millimetres (mm). Rounded to the nearest 10mm. Single and multi-stemmed trees are measured at 1.5m above highest ground level or otherwise as in accordance with Annex C, BS5837:2012.
Estimates	Measured tree dimensions are identified by an '-' in the adjacent 'Estimate' column. Where dimensions have been estimated (offsite, or otherwise inaccessible survey items) this is clearly identified by a '#' in the adjacent 'Estimate' column.
Crown spread	Unit: metres (m). Directions refer to the four compass points (north, east, south, west). Dimensions are rounded-up to the nearest half metre for heights up to 10m and to the nearest whole metre for heights above 10m.
Estimated average lateral spread	Unit: metres (m). For hedgerows only. An estimate of the average width between branch tips.
Crown clearance height	Unit: metres (m). The existing height above ground level of: <ul style="list-style-type: none"> • First significant branch and the compass direction of its growth: North (N), North-east (NE), East (E), South-east (SE) etc. • Canopy (height between branch tips and ground level).
Life stage	Y – young (stake dependent), SM - Semi-Mature (still capable of being transplanted without preparation, up to 30cm girth and not yet sexually mature), EM – Early Mature (not yet having reached 75% of expected mature size), M – Mature (anything else up to normal life expectancy for the species), OM – Over Mature (anything beyond mature and in natural decline), V – Veteran, A - Ancient (any tree displaying characteristics described by the Ancient Tree Forum and referenced by Natural England).
Special status	<ul style="list-style-type: none"> • None • Veteran: any tree judged to meet criteria as defined by the Ancient Tree Forum • Ancient: any tree judged to meet criteria as defined by the Ancient Tree Forum¹
General observations and preliminary management recommendations	General observations are recorded in relation to a survey item's structural and/or physiological condition (eg the presence of any decay and physical defect) and /or any preliminary management recommendations that may be appropriate.
Structural condition	<ul style="list-style-type: none"> • Good: without any observable significant biomechanical structural weaknesses • Fair: with minor biomechanical structural flaws. Some remedial action may be required • Poor: with significant biomechanical weaknesses requiring intervention particularly where risk management is required.
Physiological condition	<ul style="list-style-type: none"> • Good: no indications of impaired physiological function and in optimum condition for age and species • Fair: with indicators of reduced vitality. Some intervention may be required • Poor: with significantly impaired physiological function for age and species
Remaining contribution	Useful life expectancy, or the length of time a tree's is estimated to be able to make a useful contribution, is expressed in years as: <10, 10+, 20+, 40+.
Quality grading	Assessed in accordance with Table 1, BS5837:2012. Colours relate to depiction on the Tree Constraints Plan. <ul style="list-style-type: none"> • Category A (Green) Trees of high quality with an estimated remaining life expectancy of 40 years • Category B (Blue) Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. • Category C (Grey) Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. • Category U (Red) Unsuitable for retention. Trees in such a poor condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. Note - A, B and C trees are also given a sub-category of 1, 2 or 3 which reflects their arboricultural, landscape or cultural and conservation values respectively. Each subcategory has an equal weight, for example an A1 tree has the same retention priority as an A3 tree. More than one sub-category may be applied to a survey item as appropriate.
RPA radius	Root Protection Area (RPA): a layout design tool. Unit: metres (m). Radial distance from tree centre to define a circle that indicates on the Tree Survey Plan the minimum rooting area required to maintain tree's viability. Calculated in accordance with Annex D, BS5837:2012
RPA area	Unit: square metres (m ²). The area of the RPA radius circle described above. Applies only to individual trees.

¹ LONSDALE, D. (Ed). Ancient and other veteran trees: further guidance on management. The Tree Council. London. 2013.

8 APPENDIX B – TREE SURVEY AND CONSTRAINTS PLAN



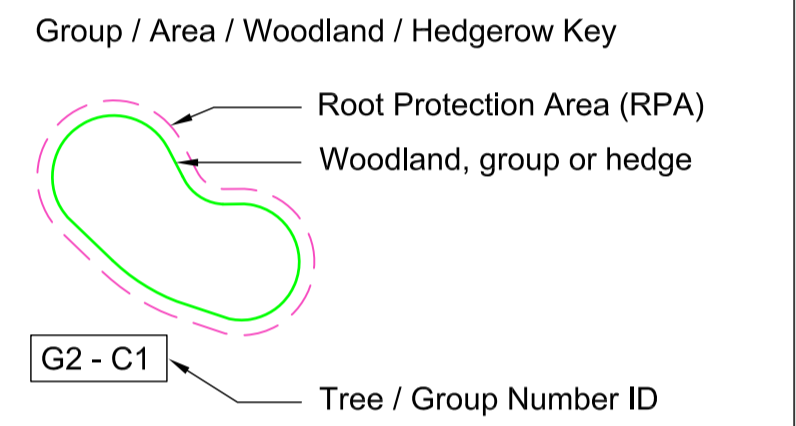
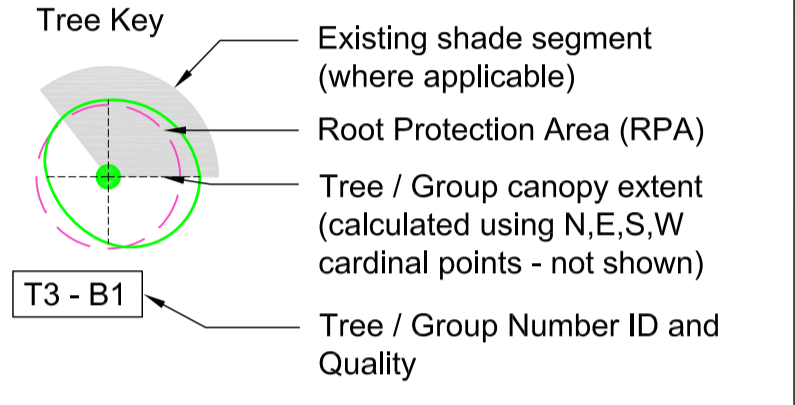
Tree number on plan	Common name	Quality grading	RPA radius (m)	RPA area (m ²)
T1	Norway maple 'Crimson King'	C1	2	12
T2	English oak	B1	9	254
T3	Common ash	C1	4	41
T4	Common ash	C1	3	33
T5	Common ash	B1	8	191
T6	Populus canadensis 'alba'	U	5	72
T7	Acer spaethii	C1	5	92
T8	Populus canadensis 'Aurea'	U	5	72

Quality and Suitability For Retention

- Category A - High quality and value (Highly desirable for retention)
- Category B - Moderate quality and value (Desirable for retention)
- Category C - Low quality and value (Optional for retention)
- Category U - Poor quality and value (Unsuitable for retention)

Root Protection Areas (RPA)

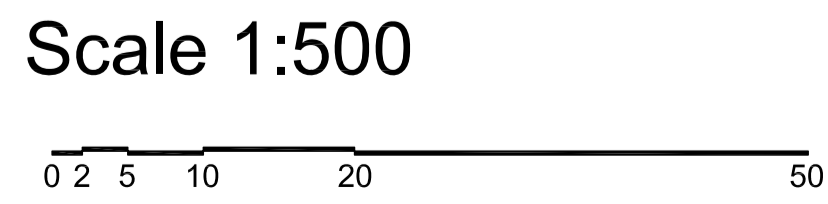
Root Protection Areas (RPA) identified are in accordance with BS5837:2012. RPA's are shown as a pink dashed polyline



Notes

- 1) Survey Date 10th Sept 2018
- 2) This drawing has been produced to be printed in colour. If you have been given this drawing in monochrome please request a colour version.
- 3) Do not scale directly from this drawing.
- 4) This drawing is to be read in conjunction with all other relevant MHP drawings and information supplied by other consultants.

Revisions:	Date:	Drawn:	Checked:
Project: Land at Kidnappers Lane, Cheltenham			
Client: Robert Hitchins			
Title: Tree Survey and Constraints Plan			
Drawing number:	18129.501		Rev:
Status:	FOR INFORMATION		
Drawn By:	Checked By:	Date:	Scale @ A1:
GW	MR	12-09-18	1:500



Land at Kidnappers Lane, Cheltenham

Tree Survey and Constraints Plan

