Further assessment of trees adjacent to the A3 boundary

RHS Wisley, Surrey

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J2002 - M25 J10 DCO further tree assessment

2nd July 2020

Summary

Following my initial assessment on 17th April 2020 to inspect the Redwood trees and carry out trial holes of their roots, I visited RHS Wisley again on 24th June 2020 to inspect all the trees within the RHS Wisley boundary with the A3 that could be adversely affected by the proposed highway improvements. My first inspection revealed that more significant trees we likely to be affected than as assessed by Highways England. The timing of these visits were constrained by the Covid 19 situation and lack of response from Highways England with cross section details of the highway construction/tree root survey.

At my second inspection I identified 44 trees that will either be removed because they are located within the compulsory purchase land footprint at the Wisley Lane crossover, or at risk because of potential disturbance to their root protection areas that extend into highway land. This is contrary to the statement included in the draft Heads of Terms for the Land and Works Agreement between RHS and Highways England.

From my review of the HE survey and comparing it to the 44 trees that I identified as being at risk, I found that the HE survey failed to:

1. take any account of the heritage or financial value of any of the Wisley trees that could be adversely affected;
2. to follow the guidance in BS 5837 on respecting RPAs;
3. to identify 16 trees (1, 2, 4–17) as impacted through the Wisley Lane changes; and,
4. possibly account for a further 15 trees (18–22, 24, 29, 31–33, 35, 37, 40–42) that could be adversely affected and may also have been missed from the HE survey.

I concluded that my plan BT1 in Appendix 1 is a reliable record of trees that could be affected, whereas the HE survey is demonstrably not.

From my heritage assessment of these trees, I found:

1. From a total of 44 trees identified as either being removed or at risk of harm because their RPAs extend into HE land, 17 Grade II Heritage Trees (2–18) will removed because they are located within the compulsory purchase land footprint at the Wisley Lane crossover.
2. The remaining 27 trees (1, 19–44) include five Grade II* Heritage Trees (26, 36, 38, 43, 44), with the rest being Grade II Heritage Trees. All these trees are at risk because their RPAs extend into HE land and any significant disturbance on these areas could adversely affect their health.
3. Of these 27 trees, I have assessed that eight trees (19, 26, 28, 32, 33, 35, 43, 44), which includes three Grade II* Heritage Trees (26, 43, 44) and five Grade II Heritage Trees (19, 28, 32, 33, 35), could be so badly damaged that they will have to be felled if their RPAs are not properly protected during the proposed works.
4. The remaining 19 trees (1, 20–25, 27, 29–31, 34, 36–42) that are all Grade II Heritage Trees except for trees 36 and 38 that are Grade II*, would be adversely affected to varying degrees, from potentially having to be felled to their health and life expectancy being significantly impacted, if their RPAs are not properly protected during the proposed works.

Summary

Through their age, size, and historic associations with this scientific collection, these trees are irreplaceable living heritage assets and any adverse impact on them will compromise the integrity of this Grade II* Listed Park and Garden.

Jeremy Barrell – 2nd July 2020

1 Introduction

1.1 Instruction and report purpose

I am instructed by RHS Wisley to inspect all the trees along the eastern site boundary with the A3, a short section of the boundary at the A3 end of Mill Lane, and a short section of the boundary at the A3 end of Wisley Lane where land is being compulsory purchased as part of the highway improvement scheme, and to prepare a further assessment of the heritage value of trees that could be adversely affected by the proposed works. Additionally, I was asked to collect enough data to carry out a financial valuation of the trees under threat, if that became necessary in the future.

1.2 My credentials

I am a tree expert specialising in managing trees in a legal and planning context, and more information on my business operation can be found at https://www.barrelltreecare.co.uk/. A summary of my credentials and legal experience can be reviewed at the following links:

1. https://www.barrelltreecare.co.uk/assets/Uploads/J-Barrell-CV.pdf
2. https://www.barrelltreecare.co.uk/assets/Uploads/JB-CareerSummary-Updated-010118.pdf
3. https://www.barrelltreecare.co.uk/assets/Uploads/LegalCases-Updated-310819.pdf

In the context of this project, I have been professionally involved in a wide range of practical tree management for more than 40 years, as both a contractor and consultant. I have published more than 140 articles and papers on trees, and am widely recognised as an international authority in this field, regularly speaking at international conferences, and as a keynote speaker in Canada, USA, Australia, New Zealand, and Italy, in the last six years. I am a specialist in heritage tree assessment and developed the first international tree assessment method called TreeAH (http://www.treeaz.com/downloads/TreeAH-Version-12-With-Updated-Nomination-Form-LR.pdf).

Since 2008, I have also been actively involved in developing the Capital Asset Value for Amenity Trees (CAVAT) method of assessing tree value, and that input is recognised in the *Acknowledgements* of the published guidance (https://www.ltoa.org.uk/documents-1/capital-asset-value-for-amenity-trees-cavat/139-cavat-full-method-user-guide-updated-september-2010/file) and the latest scientific paper, *CAVAT: valuing amenity trees as public assets* (https://www.tandfonline.com/doi/full/10.1080/03071375.2018.1454077).

I take training seriously and regularly attend continuing professional development (CPD) events to ensure that my level of knowledge is as up to date as possible. It is compulsory for me to attend and formally record a minimum of 25–30 hours of CPD a year to maintain my professional memberships. I always significantly exceed those minimums, e.g. my formally recorded Royal Institution of Chartered Surveyors CPD hours exceeded 121 hours in 2013, 245 hours in 2014, 328 hours in 2015, 470 hours in 2016, 397 hours in 2017, 397 hours in 2018, and 493 hours in 2019.

1 Introduction

1.3 Previous involvement on this site

I carried out a desktop review of limited documentation and published that on 17th April 2020, my reference Let1-170420-JB. I was not able to attend the site because of the government COVID-19 restrictions on travel in place at the time. Once the COVID-19 restrictions were lifted, I visited the site on 26th May 2020 to carry out a financial valuation and heritage assessment of two redwood trees numbered 183 and 184 on the HE survey, and to undertake exploratory excavations to establish the likely extent of root spread.

My findings from those investigations were recorded in my report titled *Tree value and root investigations for trees adjacent to the A3*, dated 2nd June 2020. In summary, that report concluded that the HE assessment of the impact on irreplaceable trees in the Wisley collection was flawed and unreliable, and that the two redwood trees were special in a heritage context for visual and scientific reasons, and could be reasonably classified as Grade II* Listed Heritage trees. Furthermore, their combined financial value was more than £1 million.

1.4 Provided documentation

I have based this report around the following provided documentation:

- Highways England (HE) *M25 junction 10/A3 Wisley interchange TR010030 6.5 Environmental Statement: Appendix 7.3 Veteran trees and Arboricultural Impact Assessment*, including a tree schedule listing some, but not all the trees, tree location plans, and an assessment of the impact on selected trees.
- RHS Wisley site topographical drawing, extract *5153431-RHSWisley-OSGBv2.dwg*, showing the locations of most of the significant trees.

2 Site visit, collection of data, and heritage value assessment

2.1 Site visit

I attended the site on Wednesday 24th June 2020 from 1000 to 1700, and met Mr W Oliffe, the Wisley Garden Manager, who supervised my visit. The weather at the time of the visit was clear, still, and dry, with good visibility. All my observations were from ground level by visual means and all tree trunk diameter dimensions were measured using a diameter tape according to the conventions described in *BS 5837 (2012) Trees in relation to design, demolition and construction – Recommendations*.

2.2 Collection of tree location data

I identified the Wisley boundaries that could be affected by the highway works from the HE plans 1 and 2 in the *Veteran trees and Arboricultural Impact Assessment* document. I walked along those boundaries to identify all the trees that could be adversely affected by activities on HE land adjacent to each tree. I did this by using the BS 5837 guidance on root protection areas (RPAs), which are calculated as a radius from the centre of the tree trunk based on a multiple of 12 times the trunk diameter at 1.5m above ground level. The BS 5837 recommendation is that any disturbance within RPAs may adversely affect trees. I measured the trunk diameters of significant trees close to the boundary and recorded all those where their RPAs extended over the boundary on to HE land. The reasoning for this is that any RPA not adequately protected could adversely affect trees if that RPA is disturbed during any construction activity.

During my survey, I noted that some of the trees where RPAs extended over the boundary into HE land were not included in the HE schedule of trees that could be affected, i.e. not all the important trees had been recorded on the HE survey. For that reason, I opted to use the RHS Wisley land survey, which does include all the trees, and I numbered the identified trees using that base plan. I include that plan as BT1 in Appendix 1 and I listed all these trees in the tree schedule included as Appendix 2.

2.3 Approach to heritage tree assessment

I am a specialist at assessing heritage trees and authored the first international method called TreeAH, which can be downloaded from the link in 1.2 above. As part of that assessment approach, I designed the conceptual diagram in Figure 1 showing how heritage trees can be ranked in a similar way to the Historic England's National Heritage List for England. Using this guidance, I visually assessed all the trees to identify if they were special for scientific, cultural, or visual reasons, which qualified them for heritage listing. In the context of Figure 1, I graded trees with heritage characteristics, and categorised them as follows based on how many heritage characteristics they had:

- **Grade I** Listed Heritage Tree (tree of exceptional interest, with three heritage characteristics)
- **Grade II*** Listed Heritage Tree (particularly important tree of more than special interest, with two heritage characteristics)
- **Grade II** Listed Heritage Tree (tree of special interest, warranting every effort to preserve it, with one heritage characteristic)

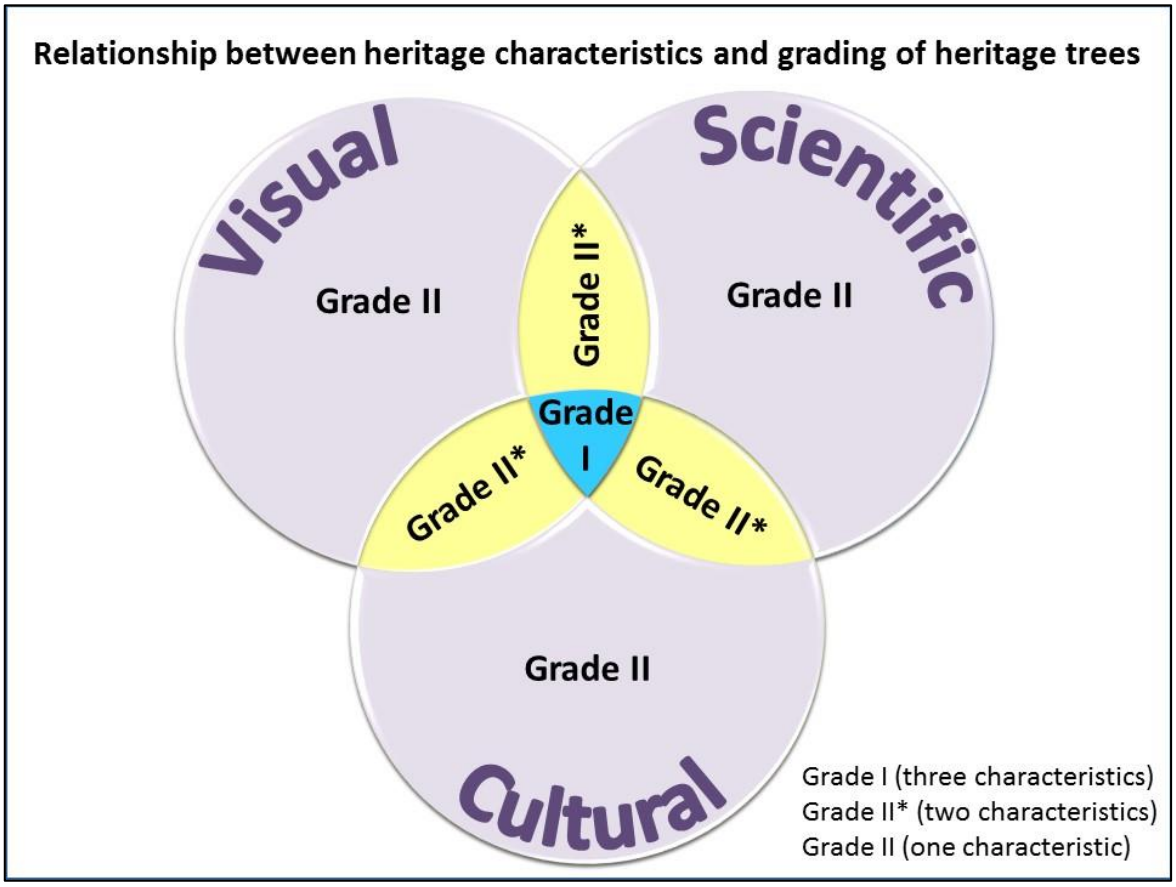

Figure 1: Conceptual diagram illustrating how the three heritage characteristics of scientific value, cultural value, and visual value, can be combined to grade heritage trees in a similar manner to the Historic England approach to grading historic buildings.

As part of that process, I noted that the Gardens are listed in the Historic England Register Official Listing as a Grade II* Park and Garden (https://historicengland.org.uk/listing/the-list/list-entry/1000126). It is registered under the Historic Buildings and Ancient Monuments Act 1953 within the Register of Historic Parks and Gardens by Historic England for its special historic interest. As such, I have taken all the trees within the Garden to be part of this historic and scientifically important plant collection.

2.4 Specific observations on trees that are special for visual reasons

Trees that are special enough to be attributed the visual characteristic for heritage assessment must be visible to lots of people and they must be memorable, e.g. they are big as landmark trees; they stand in isolation, so even though they may not be big, they are still prominent; they have a memorable feature such as a gnarled trunk or specific striking form; etc. On this site, there many visitors to the Gardens annually, many of which can stand on the central hill and look down towards the A3 taking in the panoramic view of all the trees that contribute to the character of that boundary. Additionally, the A3 is a busy road with many people per day viewing the trees as they drive along the approaches from each direction and experience the immediately adjacent Gardens boundary, seeing the tallest trees standing out against the passing skyline. In particular, the two redwoods (HE numbers 183 and 184) are particularly prominent (Figure 2), but additionally, HE trees

176, 192, and 197/201 (there is an inconsistency in the EH schedule on this numbering), are British Champions for height, and are also special visual assets that stand out above and beyond the main grouping along the A3 boundary.

Figure 2: View from within the Gardens looking down the hill to the A3 boundary illustrating the landscape prominence of the two redwoods(HE numbers 183 and 184).

2.5 Collection of financial tree valuation data

I based my collection of tree valuation data on the main CAVAT published guidance document referenced in 1.2 above, but modified by the latest guidance on the recent changes, titled *CAVAT Full Method - A Guide to recent updates* (https://www.ltoa.org.uk/documents-1/capital-asset-value-for-amenity-trees-cavat/275-cavat-full-method-a-guide-to-the-recent-changes/file). I recorded this data for future use, as listed in Appendix 2, but did not carry out a full valuation at this stage.

3 Summary of the impact on trees and the monetary implications

3.1 Discrepancies between the HE assessment and my observations

From my assessment in my report of 17th April 2020 (Let1-170420-JB), HE has not taken any account of the heritage or financial value of any of the Wisley trees that could be adversely affected. Furthermore, that assessment failed to follow the guidance in BS 5837 on respecting RPAs, and it certainly failed to identify 16 trees (1, 2, 4–17) as impacted through the Wisley Lane changes. Additionally, because of lack of clarity in the HE data allowing a positive identification, there is also possibly up to a further 15 trees (18–22, 24, 29, 31–33, 35, 37, 40–42) that could be adversely affected and may also have been missed from the HE survey.

In summary, plan BT1 in Appendix 1 is a reliable record of trees that could be affected, whereas the HE survey is demonstrably not.

3.2 Heritage value of the trees that could be adversely affected

From my assessments set out in the tree schedule in Appendix 2, I summarise the relevant points as follows:

1. A total of 44 trees were identified as either being removed or at risk of harm because their RPAs extend into HE land.
2. 17 Grade II Heritage Trees (2–18) will removed because they are located within the compulsory purchase land footprint at the Wisley Lane crossover.
3. The remaining 27 trees (1, 19–44) include five Grade II* Heritage Trees (26, 36, 38, 43, 44), with the rest being Grade II Heritage Trees. All at risk because their RPAs extend into HE land and any significant disturbance on these areas could adversely affect tree health.
4. Of these 27 trees, I have assessed that eight trees (19, 26, 28, 32, 33, 35, 43, 44), which includes three Grade II* Heritage Trees (26, 43, 44) and five Grade II Heritage Trees (19, 28, 32, 33, 35), could be so badly damaged that they will have to be felled if their RPAs are not properly protected during the proposed works.
5. The remaining 19 trees (1, 20–25, 27, 29–31, 34, 36–42) that are all Grade II Heritage Trees except for trees 36 and 38 that are Grade II*, would be adversely affected to varying degrees, from potentially having to be felled to their health and life expectancy being significantly impacted, if their RPAs are not properly protected during the proposed works.

Through their age, size, and historic associations with this scientific collection, these trees are irreplaceable living heritage assets and any adverse impact on them will compromise the integrity of the whole collection.

Appendix 1: Plan BT1 showing tree numbers, locations, and RPAs, for trees where their RPAs extend over the HE boundary or are located on land to be compulsory purchased

One A0 plan

Appendix 2: Tree schedule and explanatory notes

No	Species	Measured diameter	RPA radius	Accession No	HE No	CAVAT valuation notes	TreeAH heritage characteristics	Heritage grading	Impact
1	Beech	107	12.8		None	+10% designated garden	Scientific	II	At risk
2	Birch	21	2.5		None	+10% designated garden	Scientific	II	Remove
3	Nothofagus obliqua	73	8.8	W960710-A	204	+10% designated garden +20% rare & attractive bark	Scientific	II	Remove
4	Hornbeam	19	2.3		None	+10% designated garden, -20% for poor form	Scientific	II	Remove
5	Hornbeam	6	0.7		None	+10% designated garden, -50% for poor form	Scientific	II	Remove
6	Hornbeam	16	1.9		None	+10% designated garden, -40% for poor form	Scientific	II	Remove
7	Hornbeam	24	2.9		None	+10% designated garden, -20% for poor form	Scientific	II	Remove
8	Hornbeam	14	1.7		None	+10% designated garden, -50% for poor form	Scientific	II	Remove
9	Hornbeam	25	3.0		None	+10% designated garden, -20% for poor form	Scientific	II	Remove
10	Hornbeam	17	2.0		None	+10% designated garden, -50% for poor form	Scientific	II	Remove
11	Hornbeam	25	3.0		None	+10% designated garden, -20% for poor form	Scientific	II	Remove
12	Hornbeam	25	3.0		None	+10% designated garden, -20% for poor form	Scientific	II	Remove
13	Hornbeam	28	3.4		None	+10% designated garden, -20% for poor form	Scientific		Remove
14	Hornbeam	11	1.3		None	+10% designated garden, -60% for poor form	Scientific	II	Remove
15	Hornbeam	20	2.4		None	+10% designated garden, -40% for poor form	Scientific	II	Remove

Appendix 2: Tree schedule and explanatory notes

No	Species	Measured diameter	RPA radius	Accession No	HE No	CAVAT valuation notes	TreeAH heritage characteristics	Heritage grading	Impact
16	Hornbeam	45	5.4		None	+10% designated garden, -10% for poor form	Scientific	II	Remove
17	Hornbeam	32	3.8		None	+10% designated garden, -30% for poor form	Scientific	II	Remove
18	Birch	32	3.8		None	+10% designated garden, -10% for poor form	Scientific	II	Remove
19	Sweet chestnut	32	3.8		None	+10% designated garden, -10% for poor form	Scientific	II	At risk
20	Western hemlock	65	7.8	W963970-A	None	+10% designated garden	Scientific	II	At risk
21	Douglas fir	59	7.1	W963935-A	?	+10% designated garden, basal decay (reduced life expectancy) and thinning crown -10%	Scientific	II	At risk
22	Birch	47	5.6		?	+10% designated garden	Scientific	II	At risk
23	Western hemlock	62	7.4	W964019-A	173	+10% designated garden, memorial plaque +10%	Scientific	II	At risk
24	Western hemlock	48	5.8	W964019-B	?	+10% designated garden	Scientific	II	At risk
25	Sweet chestnut	89	10.7	W964147-A	175	+10% designated garden	Scientific	II	At risk
26	Norway maple	77	9.2	W964156-A	176	+10% designated garden, British Champion tree (girth + height) + 20%	Scientific + visual	II*	At risk
27	Oak	97	11.6	W964158-A	177	+10% designated garden	Scientific	II	At risk
28	Red oak	56	6.7	W19981893-A	181	+10% designated garden, one sided crown -10%	Scientific	II	At risk
29	Leyland cypress	87	10.4	W19981892-A	?	+10% designated garden	Scientific	II	At risk
30	Red oak	64	7.7	W19981899-A	182	+10% designated garden	Scientific	II	At risk
31	Oak	67	8.0		?	+10% designated garden	Scientific	II	At risk
32	Ash	43	5.2		?	+10% designated garden, 20–40 life expectancy (ash dieback)	Scientific	II	At risk
33	Field maple	41	4.9		?	+10% designated garden	Scientific	II	At risk

Appendix 2: Tree schedule and explanatory notes

No	Species	Measured diameter	RPA radius	Accession No	HE No	CAVAT valuation notes	TreeAH heritage characteristics	Heritage grading	Impact
34	Poplar	54	6.5	W852515-A	189	+10% designated garden	Scientific	II	At risk
35	Field maple	37	4.4		?	+10% designated garden	Scientific	II	At risk
36	Poplar	96	11.5	W903156-B	192	+10% designated garden, British Champion tree (girth) + 10%	Scientific + visual	II*	At risk
37	Oak	31	3.7		?	+10% designated garden	Scientific	II	At risk
38	Poplar	79	9.5	W903152-A	197/201	+10% designated garden, British Champion tree (girth + height) + 20%	Scientific + visual	II*	At risk
39	Poplar	63	7.6	W903157-B	198	+10% designated garden	Scientific	II	At risk
40	Poplar	70	8.4		?	+10% designated garden	Scientific	II	At risk
41	Poplar	80	9.6		?	+10% designated garden	Scientific	II	At risk
42	Cherry	41	4.9		?	+10% designated garden, partially suppressed - 10%	Scientific	II	At risk
43	Redwood	179	15.0	W19981903-B	184	+10% designated garden, part of a wider grouping giving character to the area + notably attractive form = +20%	Scientific + visual	II*	At risk
44	Redwood	170	15.0	W19981903-A	183	+10% designated garden, part of a wider grouping giving character to the area + notably attractive form = +20%	Scientific + visual	II*	At risk

Explanatory notes

- **Abbreviations:** HE = Highways England; RPA = Root protection area
- All trees are fully publicly accessible (CAVAT Step 3)
- Varying CAVAT Step 4 (canopy completeness), as noted
- All trees have the same CAVAT Step 5 (health), unless stated
- Amenity value (CAVAT Step 6) all trees have +10% as a “designated garden”, plus others as noted
- All trees have scientific heritage value because they are part of a Grade II* Garden collection
- Trees that are visually prominent as landmark trees have been assessed as having visual heritage value

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