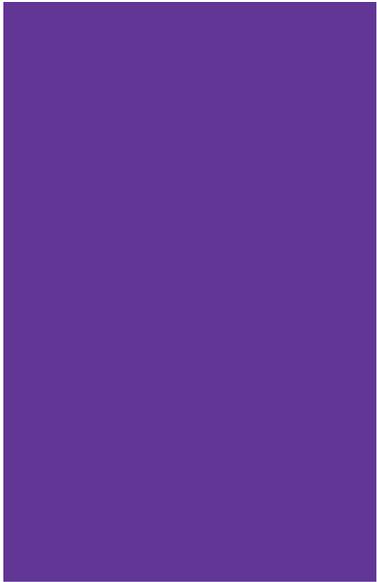


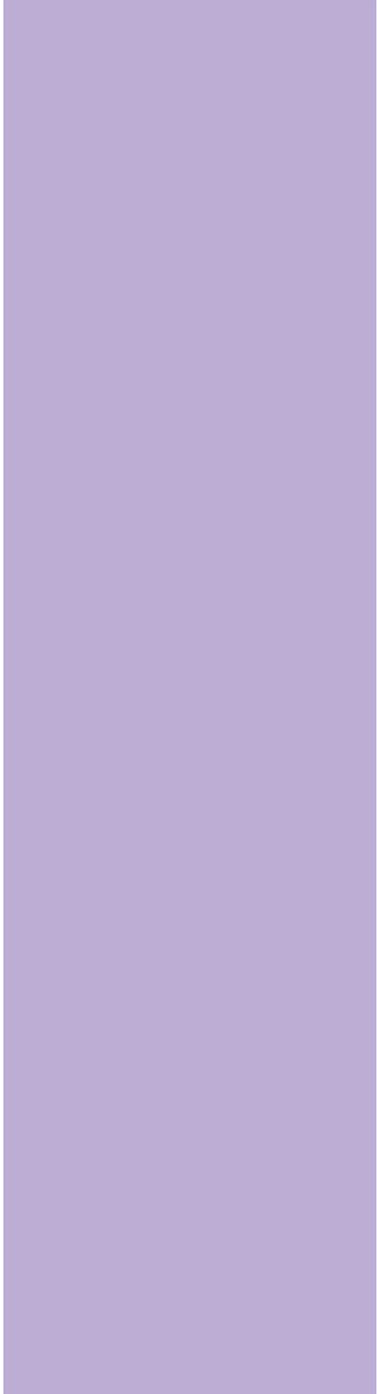
**Preliminary arboricultural report on the horse chestnut avenue  
Tooting Bec Common, Wandsworth**

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Tooting Bec Common Horse Chestnut Avenue Report-160117**



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TREE CONSULTANCY



## Summary

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I am instructed by the Save Chestnut Avenue Campaign to inspect an avenue of horse chestnut trees on Tooting Bec Common and to provide an expert opinion on a range of matters associated with its future management and value. I visited the site in early November 2016 and was provided with links to several documents that I have reviewed.

From my experience, my observations on site and my review of the provided documents, I formed the following opinions:

- Infections by the leaf miner and leaf blotch diseases on horse chestnut are unlikely to significantly reduce the life expectancy of trees in this avenue. In contrast, bleeding canker often adversely affects young trees and their prospects for recovery are not good. However, larger trees seem to have greater capacity to resist this disease and, although individuals may die, many seem to be surviving for decades, if not longer. The significant risks from bleeding canker can be controlled through pruning, which can prolong the potential for retention although there is likely to be some reduction in the full life expectancy of the tree.
- Mature trees are at the peak of their potential to deliver multiple benefits and rank amongst the most valuable individuals in an urban context. The conventional fell and replace approach to tree management that originated from the forestry sector is no longer an acceptable management strategy from a sustainability perspective. In addition to the normal multiple benefits that trees provide, heritage value is also an important factor to be given significant weight in the management equation. The trees in this avenue are at the top end of the benefit delivery spectrum because they are big, experienced by many people daily and have the potential to be retained into the long term. They also have local heritage value, with the potential for that to progress to the level of national interest if they are retained.
- Although the current management does not preserve the perfect symmetry and consistency of an idealistic avenue, it does nonetheless conserve a significant landscape feature that provides many of the intended characteristics of the original planting. Most important of these are the overall landscape scale of the feature and the heritage value associated with the presence of some of the original trees. This is a cost-effective management approach to managing risk and seems quite appropriate for this modern evolution of an ageing park. However, the replacement planting is weak in both planning and implementation, and is the biggest threat to the long term viability of the feature.
- The current regime for managing risk, focused around retaining the existing trees for as long as possible through increasingly severe pruning interventions, is appropriate for this modern park location. However, the replacement planting approach is poor, with obvious flaws in the planning and implementation that are compromising the long term viability of the avenue feature. Increasing the species palette and improving the planting husbandry will be essential elements of an improved future management regime.
- A competent decision-making process must take proper account of the arboricultural advantages and disadvantages of each course of action, and weigh and balance those within the wider community management framework.

## 1: Introduction

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### 1.1 Instruction

I am instructed by the Save Chestnut Avenue Campaign to carry out a quick visual check level of inspection of the avenue of horse chestnut trees on Tooting Bec Common, running roughly north to south from the junction of Tooting Bec Road and Dr Johnson Avenue at the southern end, to the point where it meets Bedford Hill at the northern end. I was asked to provide my expert opinion on the following matters:

1. The life expectancy of the trees and their potential for retention.
2. The value of the trees.
3. The appropriateness of the recent management regime.
4. An appropriate evolution for future management.
5. Appraisal of the proposal to fell and replace all the trees in one event.

### 1.2 Conflicts of interest

I visited the site and have written this report free of charge. I do this as part of my professional commitment to provide independent advice in circumstances where trees are under threat. My time is financed through my business, Barrell Tree Consultancy, and is justified through our Sustainability and Environmental Policy. As far as I am aware, I have not previously met those instructing me and will not receive any financial benefit from my involvement in this instruction. I do, however, declare and accept that I may benefit from my involvement through reputational enhancement. I also clarify that I do sometimes act as an advocate for trees, but in this instance, I am acting as an independent expert and comply with the appropriate professional rules that apply to expert witnesses.

### 1.3 Qualifications and experience

This report is based on my site observations and the provided information, interpreted in the context of my experience. I have experience and qualifications in arboriculture and a summary can be found at <http://www.barrelltreecare.co.uk/people/jeremy-barrell.php>.

More specifically, I am a specialist in heritage tree assessment, evidenced by my published work on this subject, including being the author of TreeAH, an international method for assessing heritage trees ([http://www.treeaz.com/tree\\_ah/](http://www.treeaz.com/tree_ah/)). I regularly present at international workshops and conferences on tree risk management, with my most recent event being a one-day workshop on heritage trees and the conference keynote at the ISA Rocky Mountains Chapter Conference in Sheridan, Wyoming, in September this year.

## 2: Site visit, observations and review of relevant documents

### 2.1 Site visit

I visited the avenue on 8<sup>th</sup> November 2016, where I was shown the trees by Ms Francine Ford and several other interested parties. We walked along the main avenue, which is formed by two rows of trees, one each side of a central metalled path. I focused on the horse chestnut trees directly adjacent to the path, although I noted others in the vicinity. I viewed all the trees from the path, but also took time to inspect some more closely. All my observations were from ground level and I estimated all dimensions unless otherwise indicated. I stress that my inspection was of a preliminary nature and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level. The weather at the time of inspection was dull, still and dry, with average visibility. During my visit, I took photographs to illustrate specific points in this report.

### 2.2 Summary of observations

It was late autumn when I visited and so the bulk of the leaves were brown and in the process of being shed from the trees. Many of the leaves had fallen, but some were still attached to the branches (Figure 1). From the leaves that I saw, there was extensive damage from the horse chestnut leaf miner (*Cameraria ohridella*) and infection to a lesser extent by Guignardia leaf blotch (*Guignardia aesculi*). Most of the trees showed signs of infection from bleeding canker, which is most often caused by a bacterial pathogen, *Pseudomonas syringae* pv *aesculi*, and occasionally by *Phytophthora*. Most of the lesions on the larger trees looked to have been present for many years, and although some were substantial with evidence of vigorous occlusion (Figure 2), others were smaller and less significant, limiting their impact. However, those present on younger trees were generally more active and seemed to be having a greater impact due to their concentrations on the lower trunks.



**Figure 1:** A typical view along the avenue looking towards the north, with one of the oldest trees on the right and one of the younger replacements on the left.



**Figure 2:** Some of the older trees do have significant lesions resulting from bleeding canker infection, but many have vigorous woundwood growth around the wound margins, indicating that the trees are actively responding to the damage.

In terms of previous management, some of the trees had been pruned to varying degrees, ranging from limited storm damage management, to crown reductions of up to about 50% of overall height (Figure 3), to much more substantial crown reductions of up to about 70–80% of overall height (Figure 4). I noted that the bulk of the more recent replacement planting were horse chestnut, although there were some other species. Generally, the maintenance of the

## 2: Site visit, observations and review of relevant documents

new trees in terms of staking, weed control and mulching was of a poor standard, with some obviously struggling to successfully establish.



**Figure 3:** View looking towards the south with a crown reduction of about 50% to the tree on the left.



**Figure 4:** One of the oldest trees with a significant crown reduction of 70–80%.

### 2.3 Other relevant information

I have seen the Tooting Common Heritage Tree Survey dated May 2015 prepared by The Landscape Group, University of East Anglia. It directly references this avenue in section 3.7 and confirms that the original trees are thought to have been planted in the 1870s or 1880s, making the oldest around 130–140 years old, although there are clearly many younger trees from subsequent planting.

I have also seen seven pages from an Independent Survey by Gifford Tree Services dated March 2016. However, it is unclear whether this is the complete document or an extract. Furthermore, although the title says it is “Independent”, there is no clear statement within the document on what the specific instruction or purpose of the survey was. Until clarification on the nature of the instruction is available, it would seem prudent to treat the advice in the *General Comment and Recommendations* section with caution.

I am aware that a tree condition survey was carried out by Treework Environmental Practice in 2015, but I have not seen its content.

## 3: Discussion of the issues and my opinion

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### 3.1 The life expectancy of the trees and their potential for retention

#### 3.1.1 General impact on tree life expectancy by the three pathogens

Most of the horse chestnuts are suffering to varying extents from the three main pathogens described in 2.2 above. It is widely accepted that most trees can tolerate the two leaf problems without immediate demise, and that infection will not directly cause death, although they can cumulatively predispose trees to attack from other pathogens. Although the bleeding canker is probably the most serious of the three conditions, there are obvious indications that the larger trees are showing significant resistance and death/failure is certainly not imminent following infection. This is evidenced by the vigorous woundwood production on some of the trees (Figure 2), which reflects my experience of the species being able to resist this pathogen in the wider population. Not all trees are successful, and some will certainly die from it, but it would be premature to consider infection as enough to automatically condemn a tree without waiting to see how it responds over subsequent years. However, smaller trees are proving to be much more susceptible, seemingly because the width of multiple cankers can quickly accumulate to kill enough tissue around the small stem circumference to prevent the tree effectively recovering. The evidence that I have seen is that smaller trees are much more vulnerable and more likely to succumb to the disease than larger individuals.

#### 3.1.2 Specific impact on tree life expectancy by bleeding canker

It is widely reported in technical references that the species can live for at least 150–200 years, and that is my experience from trees that I have seen throughout my career. The impact of the three pathogens affecting these trees is less certain, and seems likely to vary according to the size of the tree. It seems likely that the younger smaller trees will succumb quite quickly on a regular basis because they seem to struggle to keep up with loss of tissues associated with the bleeding canker. For this reason, their life expectancy prospects do not seem to be good. However, it is different for the larger trees because they are proving to have the capacity to be more resistant and less likely to succumb quickly. My experience is that some trees do die, but there is increasing evidence that many seem to be demonstrating resistance to the pathogen, with some recovering and showing very little, if any, significant long term adverse impact. Although infection is probably going to reduce the overall life expectancy of the larger trees through increasing their susceptibility to other pathogens and structural failure, the present evidence indicates that this is likely to be measured in decades rather than any more extreme shortening of the anticipated survival of mature trees. For this reason, it would seem unreasonable to assume that infection will automatically significantly reduce the life expectancy of mature trees. In this context, for the larger trees in this avenue, although the odd tree may succumb, I assess that the bulk of the trees that I saw have the potential to live for at least several decades, and many for much longer.

### 3: Discussion of the issues and my opinion

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#### 3.1.3 The impact of bleeding canker on the potential for retention

Life expectancy is just one aspect of the management equation, with risk of harm being an equally important factor. Although trees may live for many decades, attention must focus on whether any significant risks associated with their retention can be managed. The significant risks associated with bleeding canker are the wounds predisposing branches and stems to structural failure and an increased risk of root decay pathogens predisposing whole trees to falling because of root failure. My experience is that both risks can be and are regularly managed through pruning, and that complete removal is rarely necessary unless the infection is severe. Indeed, because the pathogen rarely kills larger trees quickly, pruning to control significant risks offers a management option that can allow trees to be retained for many years despite infection. However, it does seem likely that infection may result in some reduction in life expectancy.

#### 3.1.4 Summary of my opinion

Therefore my opinion is that infections by the leaf miner and leaf blotch diseases on horse chestnut are unlikely to significantly reduce the life expectancy of trees in this avenue. In contrast, bleeding canker often adversely affects young trees and their prospects for recovery are not good. However, larger trees seem to have greater capacity to resist this disease and, although individuals may die, many seem to be surviving for decades, if not longer. The significant risks from bleeding canker can be controlled through pruning, which can prolong the potential for retention, although there may be some reduction in the full life expectancy of the tree.

### 3.2 The value of the trees

#### 3.2.1 The relationship between tree benefits and maturity

It is now widely accepted, and open to confirmation through calculation by various methods, that trees provide multiple benefits above and beyond any obvious intrinsic monetary value in the wood. These include temperature buffering, rainwater runoff buffering, ecological enhancement, pollution filtering, carbon sequestration, UV light reduction, visual enhancement, and, most importantly, positive contributions to human health and wellbeing. It is also now understood that these benefits increase exponentially from planting to maturity, with the greatest and sustained benefits being delivered by mature trees once they have attained their full size. Furthermore, these benefits continue to accrue as mature trees progress to over-maturity and even beyond their death, with the ecological diversity supported by large old trunks being the most obvious example. One of the primary consequences of these recent advances in knowledge is the revelation of the damaging nature of the traditional forestry oriented management approach of felling trees when they become mature and replacing with new trees. In an urban context, such a regime removes the trees at the peak of their potential to deliver benefits and deprives local communities of the most productive phase of the life cycle. Maturity is the size of peak benefit delivery, which can often last more than 50% of the full life expectancy of the tree. For this reason, it is no longer considered an acceptable or sustainable management practice to automatically fell trees

### 3: Discussion of the issues and my opinion

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as they reach maturity and replace with new trees as a single operation at one point in time. Instead, wise managers will manage ageing trees to optimise the flow of benefits available in the latter parts of their lives in a phased way, focusing on establishing replacement planting well in advance of their final demise.

#### 3.2.2 Heritage value

Heritage is a concept that can have a range of interpretations, with implying an interesting association with a notable historical event, place, person and/or custom probably being one of the narrowest. Heritage is most widely known and experienced in the context of buildings and their links to the past, but it can also be applied to trees. Indeed, the living nature of trees adds an extra dynamic and warm dimension that is absent from static and cold that characterises the non-living. Trees are a living link with the past and bridge to the future; a means for people now to connect with ancestors no longer with us and descendants who will come after us. Such links are real and have huge value to ordinary people, although they are often dismissed as irrelevant by accountants and managers with a convenience focus on the easy and simplistic quantification of monetary value. In a community context, heritage trees are sufficiently special to ordinary people to warrant a greater level of care in their management than would be applied to average trees. Trees can have heritage value for visual, scientific and/or cultural reasons; the more special characteristics they have, the more important they are, and the greater weight they should be given in the decision making process. Heritage value can be visualised as a spectrum or range within the wider tree population. At the lower end, ordinary everyday common trees sit off the scale, but form the reservoir for future or emerging special trees. Entry level heritage trees are those with local interest, with the potential to sit at the higher end of the range as that interest becomes more important at a national level. The top end of the scale is occupied by trees of outstanding special interest at the national and international level. More is published about heritage tree assessment at [http://www.treeaz.com/tree\\_ah/](http://www.treeaz.com/tree_ah/).

#### 3.2.3 The value of this horse chestnut avenue

In broad terms, these trees are a significant landscape feature within the wider park landscape and are experienced closely by many people daily. Furthermore, many of them are significant in size, so 15–20m in height, which means that they are at their peak for contributing benefits to the local community. In the wider tree population, they sit at the top end of the value spectrum in terms of delivering benefits because they are big, close to many people and have the potential to be retained for many years. Additionally, they are part of the historic origins of the park, with some individual trees dating back to the original formal design created in the late 1800s. At about 130–140 years old, the oldest trees certainly do have local heritage value because of their direct link to the past that is now beyond living memory. Although this makes them special on a local level, they are not yet old enough or special enough to sit at the upper end of the heritage value spectrum at the national level. However, the feature is not far off the threshold and has increasing potential to become a nationally important heritage asset if it can be conserved and the oldest trees retained.

### 3: Discussion of the issues and my opinion

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#### 3.2.4 Summary of my opinion

Therefore my opinion is that mature trees are at the peak of their potential to deliver multiple benefits and rank amongst the most valuable individuals in an urban context. The conventional fell and replace approach to tree management that originated from the forestry sector is no longer an acceptable management strategy from a sustainability perspective. In addition to the normal multiple benefits that trees provide, heritage value is also an important factor to be given significant weight in the management equation. The trees in this avenue are at the top end of the benefit delivery spectrum because they are big, experienced by many people daily and have the potential to be retained into the long term. They also have local heritage value, with the potential for that to progress to the level of national interest if they are retained.

### 3.3 The appropriateness of the recent management regime

#### 3.3.1 Summary of the current approach

From my observations of the trees that remain in the avenue, there appears to have been a recent policy of minimal intervention, with works implemented on an as necessary basis. This is evidenced by the bulk of the obvious interventions consisting of the removal of odd branches, with fewer more substantial crown reductions of up to 50% and very few much more severe crown reductions of up to 70–80%. Where trees have been removed, some replacements have been planted of a variety of species, but there were obvious gaps with no new trees. It was noticeable that the horse chestnut replacements were suffering badly from bleeding canker and most had limited potential for retention beyond the short term. This minimal intervention management approach, with a focus on retaining trees for as long as possible and replacing them when retention is no longer feasible, seems to have been effective at controlling significant risks. Furthermore, this is an effective way of optimising the benefits whilst minimising the costs. However, the replacement strategy is much weaker and will compromise the long term prospects for the feature if it does not evolve.

#### 3.3.2 Impact of current management on the delivery of tree benefits

In addition to adequately controlling significant risks, this strategy of retaining trees for as long as possible over many decades has conserved the visual impact of the avenue as a landscape scale feature. Throughout its length, the larger trees dominate the distant vistas and, although there are obvious gaps and inconsistencies in form and size, this does not significantly detract from the perception and experience of the avenue as an important visual feature within the park. Furthermore, this approach has allowed the retention of a significant number of the original trees, which preserves the historic and cultural links with the past, and secures these living connections with the future. The approach of increasingly severe pruning as risks become more significant does mean that some of the trees have a form that is not typical of open-grown trees in good condition, i.e. a squatter trunk and stem framework as opposed to the conventional larger tracery of thinner branches from taller trunks. This is most obvious in the winter once the leaves have fallen, but once in leaf during the summer, this structural characteristic is not so

### 3: Discussion of the issues and my opinion

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prominent and is less detracting from the overall impact created by the double row of significant trees. In contrast, the replacement planting strategy is not as effective and the long term viability of the avenue is being compromised through poor planning and implementation.

#### 3.3.3 Summary of my opinion

Therefore my opinion is that, although the current management does not preserve the perfect symmetry and consistency of an idealistic avenue, it does nonetheless conserve a significant landscape feature that provides many of the intended characteristics of the original planting. Most important of these are the overall landscape scale of the feature and the heritage value associated with the presence of some of the original trees. This is a cost-effective management approach to managing risk and seems quite appropriate for this modern evolution of an ageing park. However, the replacement planting is weak in both planning and implementation, and is the biggest threat to the long term viability of the feature.

#### 3.4 An appropriate evolution for future management

##### 3.4.1 Tree pruning and removals

As I discuss above, the current management approach of minimal intervention has multiple advantages, including:

1. Controlling significant risks in a cost-effective manner.
2. Minimising the visual impact on the locality by spreading the significant pruning and removals over a long time rather than the dramatic impact that bulk removals in one event would have.
3. Optimising the long term delivery of tree benefits to the local community because the trees are retained during the peak performance period of their life, i.e. maturity.
4. Maximising the ecological enhancement through the retention of large trunks, which is where much of the biodiversity potential comes from.
5. Conserving the heritage value of the feature by retaining the physical and living links to the past and the future created by the presence of the original trees.

However, there are also disadvantages, including:

1. The evolving feature has an inconsistent form because the trees are of different ages, sizes and structural form, which is contrary to the idealistic original intention of an avenue.
2. Severe pruning and the retention of older trees can require a greater intensity of management than felling and replacement with defect-free trees.

On balance, and in my experience, the benefits of this approach significantly outweigh the disbenefits, and I favour this type of management in all but the most formal situations. There are circumstances where perfection and consistency require a rigid fell and replace in one event approach, e.g. an historic stately home, but a park with a wide range of tree features such as Tooting Bec Common does not sit comfortably within that level of formality.

### 3: Discussion of the issues and my opinion

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#### 3.4.2 Replacement planting

I did not record any detail on the number, species and maturity of the new planting, but I did note clearly that the horse chestnuts dominated the species mix and are not doing well. In contrast, the lesser number of newly planted trees of other species are establishing, although their maintenance in terms of staking, weeding and mulching is lacking in places. I also noted that there are obvious gaps where new trees could be planted, but have not been. In our modern environment of climate change and increasing frequency of new tree pests and diseases, single species landscape features are simply no longer viable or sustainable. An emerging cornerstone of tree population resilience in the context of climate adaptation and biosecurity is a varied species palette that is not restricted to natives. Learning by experience is a valuable process, and the lesson from the recent planting is that the traditional horse chestnut, i.e. *Aesculus hippocastanum*, is not viable as a young tree and is unsuitable as a dominant species in the replacement planting. This, along with poor maintenance and the failure to fully replant all the vacant locations for new trees, are the main weaknesses in the recent management regime.

#### 3.4.3 Future evolution of the replacement planting strategy

To optimise the climate adaptation and pest resistance resilience of future replacement planting, the species palette should be significantly increased from several species to at least five or six, and possibly more, and not limited to native-only. To retain the landscape scale of the overall feature, these should all be species with the potential to reach a similar size to horse chestnut, i.e. large, even though their precise form and visual characteristics will vary from this original template. All the existing spaces for new trees should be planted and a proactive approach to anticipating mature tree losses should be adopted. This should focus on planting new trees near existing trees with limited potential for retention, so that when the significant crown reductions are implemented, there are new trees growing ready to fill the gaps quickly. Additionally, all new trees should be properly staked, weeded and mulched until regular maintenance becomes unnecessary, as described in BS 8545 (2014) *Trees: from nursery to independence in the landscape*.

#### 3.4.4 Summary of my opinion

Therefore my opinion is that the current regime for managing risk, focused around retaining the existing trees for as long as possible through increasingly severe pruning interventions, is appropriate for this modern park location. However, the replacement planting approach is poor, with obvious flaws in the planning and implementation that are compromising the long term viability of the avenue feature. Increasing the species palette and improving the planting husbandry will be essential elements of an improved future management regime.

### 3: Discussion of the issues and my opinion

#### 3.5 Appraisal of the proposal to fell and replace all the trees in one event

##### 3.5.1 The arboricultural advantages and disadvantages of each option

Good management should identify all the material considerations that will be affected by a proposal, and weigh them in the context of important objectives before coming to a decision that balances all the competing demands. In the discussions above, I have described my preferred management option of keeping the existing trees for as long as possible, in parallel with a proactive replacement policy. An alternative to this is to remove all the trees and plant replacements in one event. Each approach has advantages and disadvantages, which should be properly factored into the process of deciding which to adopt. To assist in that process, I set out my assessment of the principal arboricultural pros and cons of both approaches in the table below:

Management option	Advantages	Disadvantages
<b>Retain all existing trees for as long as possible and proactively plant replacements</b>	<ul style="list-style-type: none"> <li>• Reduced visual impact of tree removals</li> <li>• Optimised delivery of tree benefits</li> <li>• Significant enhancement of biodiversity</li> <li>• Conservation of heritage value through retaining the physical and living links to past and future generations</li> </ul>	<ul style="list-style-type: none"> <li>• Retains weak and vulnerable species into the long term</li> <li>• Inconsistency in structural form and visual texture, which is contrary to the idealistic/traditional expectation from a single species avenue</li> <li>• Increased maintenance intensity for the older trees</li> </ul>
<b>Remove all the existing trees and replace in one event</b>	<ul style="list-style-type: none"> <li>• Removes weak and vulnerable species immediately</li> <li>• Establishes symmetry and consistency within the feature</li> <li>• Minimised maintenance costs</li> </ul>	<ul style="list-style-type: none"> <li>• Dramatic immediate visual impact of tree removals</li> <li>• Loss of significant future benefits through removing trees at their peak of benefit delivery</li> <li>• Reduction in biodiversity potential</li> <li>• Removal of living heritage links and significant reduction in heritage value</li> </ul>

In addition to these tree considerations, a balanced decision needs to take full and proper account of views of the local community and of any budgetary constraints that exist within the management framework.

##### 3.5.2 Summary of my opinion

Therefore my opinion is that a competent decision-making process must take proper account of the arboricultural advantages and disadvantages of each course of action, and weigh and balance those within the wider community management framework.

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