

View of buildings is complimented with mature trees which can be appreciated by thousands of passing commuters each day

Arboricultural Assessment & Report

Date of Assessment
Month of October 2023

Sites
Christie Hospital
Manchester

Instructed by
Ashlea Landscaping Ltd

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Index

1.0 Instructions

2.0 Report Limitations

3.0 Introduction

4.0 Findings

5.0 Analysis

6.0 Conclusions

7.0 Recommendations

8.0 Disclaimers

9.0 Appendices

10.0 Bibliography

11.0 References

12.0 Useful web links

13.0 Photographs

14.0 Glossary

Appendix A - Mapping

Appendix B - Tree Schedule

Appendix C - Detailed Tree Schedule (Not suitable for printing)

1.0 Instructions

1.1 I have been instructed by Ashlea Landscaping Ltd to assess and document all the trees within the grounds of Christie Hospitals remit.

1.2 The purpose of the report is to assess the risk of trees to people and infrastructure:

a) The tree owner seeks to ensure it reasonably meets its duty of care by demonstrating a defensible, proactive tree management regime.

b) Visually inspect trees growing within the site.

c) Identify trees that pose an unacceptable risk and recommend remedial works to reduce risk to acceptable levels.

d) Provide a report in order to assist in planning and management of the trees.

1.3 It was agreed that a basic level of inspection be applied to the trees in order to aid the preparation for an Arboricultural Report including tree and risk assessment, report findings and mitigation recommendations if required.

1.4 A suitable management plan with recommendations is required in accordance with current Arboricultural best practice BS3998: 2010.

2.0 Report Limitations

2.1 The inspection will identify defects and other failure-prone characteristics of the tree where these features might be reasonably anticipated to cause an unacceptable risk. It must nevertheless be recognised that no tree is entirely safe, given the possibility that an exceptionally strong wind or other unusual circumstances could damage or uproot even a mechanically ‘perfect’ specimen.

2.2 While every attempt has been made to provide a realistic and accurate assessment of the trees' condition at the time of inspection, no responsibility can be accepted for damage or injury sustained as a result of the failure of any tree due to faults not apparent during a visual, ground-level based inspection carried out at this season, or to faults developing subsequent to the survey.

2.3 Similarly, no liability can be accepted for the condition of the tree that was obscured in part or in whole (e.g., by structures) nor for any that proved inaccessible at the time of the inspection. Certain features which might provide evidence of on-going decay or decline (such as seasonal fungal fruiting bodies, damage to foliage, insect emergence holes etc.) may not have been in evidence; only those features that are apparent at the time of the inspection can be assessed.

2.4 Underground services were not confirmed around the tree surveyed. The potential influences of trees upon building or other structures resulting from the effects of trees upon shrinkable load-bearing soils or the effect of incremental root growth are specifically excluded from this report.

2.5 The report reflects the trees as found on the day surveyed. Change of ground levels, soil conditions, surrounding tree cover or land use, or any ground works within the root zone of any tree may invalidate the content of this report. No root zone excavation was undertaken.

3.0 Introduction

3.1 My name is Andrew McLoughlin and I have been the author and the Managing Director of Treestyle Consultancy Ltd since 2001. I have a National Certificate in Arboriculture and a MArborA in Arboriculture. Qualified Arboriculturist since 1998. ISA Tree Risk Assessment Qualification, Quantified Tree Risk Assessor. Ancient and Veteran Tree Expert. I am a professional member of the Arboricultural Association and a member of Consulting Arborist Society.

3.2 The report is based upon data collected on site on several occasions in the month of October 2023 by A McLoughlin.

3.3 A meeting with Phillip Walker was held to ascertain their requirements in moving forward with regards to tree safety and retention. It was agreed that a tree inventory should be created of all the trees within the grounds and those within proximity to targets.

3.4 The grounds have a history of tree inspections and good tree management.

3.5 The methodology for the procedure for the preparation for this document is as follows:

- Communication with the client to gain an understanding of the site history.
- Carry out a Visual Tree Assessment (VTA) with the aid of a nylon mallet.
- Assess the trees life potential and their visual amenity value.
- Tree risk assessment.
- Recommend mitigating measures and actions if necessary.

3.6 The trees were assessed at a basic level, a Visual Tree Assessment (VTA) was where possible completed. However, trees with ivy or on private or inaccessible land will will have had a limited visual assessment. An explanation of these can be read in Appendix 1.

3.7 The trees provide outstanding visual amenity value by creating wonderful greening, areas for recreation and outstanding wildlife habitats. High occupancy target areas being residential properties and busy public highways with vehicles in places being permanently beneath tree canopies. The trees proximity to buildings and vehicles beneath canopies do create a risk of falling branches, however, where trees and people coincide there will always be an element of risk.

N.B. Target areas are places where a tree or tree part could fall and land on a vehicle, structure or a person causing damage or injury or disruption.

4.0 Findings

4.1 Below are the findings from the visit;

- A great variety of tree species were observed on site consisting of lime, sycamore, horse chestnut, Cyprus, beech, ash, willow, black locust, maple, magnolia, Scots pine, holy, hawthorn, alder, poplar, hornbeam, rowan, hazel, cherry, birch and oak.
- Site assessment of the green infrastructure observed dozens of trees of high quality and value.
- Two hundred and seventy one individual trees and twenty groups of trees were documented.
- The site has outstanding wildlife habitat potential especially in light of the urban environment which engulfs much of its boundaries.
- Good screening from neighbouring highways and residential properties.
- Good age and species diversity across the site complimented by good tree planting throughout the grounds.
- Generally, in areas of high occupancy around the Hospital, other structures, parking and public highways being within striking distance of large trees, there is the potential for damage or disruption should entire tree failure occur.
- The occupancy beneath the trees where staff, patients and visitors pass beneath trees is generally regarded as low.
- Ivy and dense epicormic growth restricted the Visual Tree Assessment (VTA).

4.2 The Visual Tree Assessment (VTA)

- The diagnosed ash dieback (ADB) *(Hymenoscyphus fraxineus)* was observed.
- Drought damage can be seen in trees of all ages but predominantly with beech *(Fagus sylvatica)* and sycamore *(Acer pseudoplatanus).*
- Soil compaction from plant machinery from a history of development is causing the greatest detriment to the sites trees.
- Trees have been identified as having mechanically weak structures.
- The grounds have a history of pollarding which has lapsed with substantial regrowth.
- The removal of large trees with what was previously a woodland will subject the remaining trees to sudden exposure to wind throw.
- Wood decaying fungi such as Brittle cinder *(Kretzschmaria deusta)* were observed on several mature lime trees.
- An overgrown beech hedge is suffering from giant polypore *(Meripilus giganteus).*
- Canopies encroaching onto buildings.
- Newly planted trees lacking post planting management.
- Squirrels ringbarking beech trees causing early mortality.

5.0 Analysis

Based on the following: VTA, interpretation and risk assessment, there is a high probability of a tree or tree part falling and causing injury prior to the next inspection.

5.2 Trees have been identified as having weak mechanical structures due to their poor form with V shaped unions and bark inclusion. These unions have been recently researched to have up to 42% weaker structure than a convention stem/branch union (D Slater 2016). Whilst failure has not yet occurred with the increased age and size of the tree comes the increased probability of failure.

5.2.1 Where trees with mechanically weak structures are not protected from the elements, high occupancy and sensitive targets and where activity or structures that have the potential to cause injury or be damaged, then this would be an unacceptable level of risk. An example of this would be within the eastern car park which was once a woodland where a number of huge trees still exist.

5.2.2 Large stems/limbs with bark included unions, some with an element of exposure overhanging high risk occupancy targets may contribute to an unacceptable risk. Dozens of mature lime trees now have lapsed pollards which can be seen overhanging public highways and buildings.

5.2.3 Where trees with mechanically weak structures with restricted exposure and low to moderate occupancy target areas then, in certain circumstances, there may be an acceptable level of risk. Similarly an overgrown beech hedge has also a lapsed pollard yet has partial protection from neighbouring trees. This has now been compromised with the identification of honey fungus *(Armillaria mellea)* on several within the grounds.

5.2.4 Small trees and shrubs with mechanically weak structures have low failure potential and lower risk.

5.3 Environmental issues with the onset of global warming create a fast changing environment where some tree species cannot adapt. Both young beech *(Fagus sylvatica)* and sycamore *(Acer pseudoplatanus)* were documented with drought stress.

5.3.1 Drought is a common feature with our ever changing seasons where long periods without rain are not allowing for precipitation into the soil profile to allow for trees roots to access essential water. Whilst some species can have a higher element of resistance to drought, others are not coping and crown dieback can occur. Drought related stress has potential to have a moderate impact with the hospitals trees with many showing advanced stages of decline.

5.3.2 The lack of water availability to trees is the biggest killer which can cause irreversible stress and with recent drought conditions the aging tree population is under threat. There are several contributing factor to this issue and are as follows:

- Global warming sees longer warmer periods without rain.
- Change of land use with development creating urban heat traps.
- Compaction created by footfall from people and vehicles is contributing to compaction and drought.
- Many trees which recently existed in woodland and now exposed to large amounts of sunshine and wind thus creating an inhospitable environment.

5.3.3 Several recently planted trees are suffering from decline and in some cases now irreversible stress.

5.4 Trees were identified with biological issues such as bracket fungi causing heart and root rot which greatly reduce a trees life potential and increase the levels of risk.

5.4.1 Brittle Cinder fungi *(Kretzschmaria deutsa)* observed on the lower stem of T105 sycamore *(Acer pseudoplatanus).* Additionally the two lime *(Tilia spp)* T167 & T169 which are overhanging public highways and the Proton Beam Therapy Centre entrance also have this fungi, see the photos at the rear. The restricted visual assessment due to dense epicormic growth which had been partially cut back allowed for the identification of the fungi. Pictures of the fungi can be viewed in the rear of this document. The prolonged development of the soft rot mode can lead to a catastrophic brittle failure with a ceramic like fracture surface. There are no warning signs of bulging or cracking like other white rot fungi.

5.4.2 Honey fungus *(Armillaria mellea)* fruiting fronds were observed on T40 beech *(Fagus sylvatica)* where it would appear several trees have already been removed. Similarly, two other beech T57 & T58 near to T40 were observed to have severe canopy decline where it is assumed that these also have been infected.

5.5 Low hanging branches were documented in multiple areas including public highways and areas of open space.

5.6 Infrastructure near trees can create above and below ground constraints, these can present themselves in many formats. Canopies naturally spread outwards and downwards which can restrict street lighting.

5.6.1 Below ground constraints with tree roots and their buttresses can create trip hazards, affect walls and public footpaths with subsidence and soil heave all of which are potential hazards.

5.7 A group of trees in the eastern car park have multiple issues with potential damage caused to their root systems. This will have happened through years of mismanagement with the creation of parking spaces with grasscrete then the development of the multi-storey car park where access over the root plate of several large trees was required to access the development. The tree roots of these trees would have been compacted which can result in their desiccation and allowing for pathogens into the trees system. The damage caused induced irreversible stress which can take many years to manifest itself and often resulting in entire tree failure.

5.7.1 The greatest impact on a tree can be seen with T105 where 95% of the canopy is missing with huge deadwood/decline overhanging where site access for the development of the multi-storey was gained.

5.7.2 With the damage caused by the developments over the years the extent of the impact could not be gauged. This is due to tree roots being potentially damaged directly and indirectly through soil contamination and compaction and all being below ground. All trees within this area have been compromised with various levels of impact being seen. It would appear that greater damage is being caused with trees being located more centrally.

5.7.3 Whilst several trees have been identified as requiring either remedial work, removal or monitoring, two of the largest next to the multi-storey are now in question. T98 beech *(Fagus sylvatica)* and T99 horse chestnut *(Aesculus hippocastanum)* were noted as having stressed canopies and whose rooting areas would fall within the development. Knowing the level of protection during the development is critical to their retention.

5.8 Established groups of trees provide good urban greening and screening. Originally well planted the issues now lie with post planting maintenance as they are still tied to their tree retention ties. These should normally be removed after 2 to 3 years of planting which is assumed to be well overdue. The ties are restricting the trees natural widening of its stem putting the tree in a sense of false security and they should be completely removed.

5.8.1 The removal of tree ties can invite ground maintenance with mowers and strimmers to remove grass from the bases of trees which again can cause irreversible damage which could be protected by small tree guards.

5.9 Whilst ivy *(Hedera helix)* has excellent wildlife benefits, its presence on a trees stem and within its canopy can restrict the VTA process by hiding both biological or mechanical issues.

5.9.1 Similarly, dense vegetation or epicormic growth (especially on lime) can restrict the identification of disease such as *(Kretzschmaria deutsa).* The removal of epicormic growth on the two lime T167 & T169 allowed for its identification. See photograph.

5.3 ADB *(Hymenoscyphus fraxineus)* was identified which was consistent with stress related growth and dieback of the outer canopy displaying abnormal amounts of deadwood. Most of which are at an advanced stage of decline.

5.3.1 The greatest threat of injury from ADB is with falling deadwood as the stem is generally structurally sound in the early stages of dieback, however, they do have limited life potential and will only increase with their risk potential in the coming years. Potentially all ash will succumb to the disease with some seen along public highways.

5.4 The ringbarking of predominately beech *(Fagus sylvatica)* was noted which results in early mortality in trees. See the link at the rear of this document with regards to grey squirrels.

6.0 Conclusion

6.1 The green infrastructure is an asset to the Hospital, passersby and more importantly to its patients with large mature trees and newly planted ones providing essential urban greening in what otherwise would be a sterile concrete environment. With ownership of such trees comes not only responsibility for safety, but for the upkeep of the tree population. The summary with the areas of concern are as follows:

- Failure to address the damage caused by development will see dozens of trees being lost. This process will also have an effect with the visual impact around the grounds and have an adverse effect on wildlife.
- Trees housing mechanically weak structures lining sensitive target areas such as parking and residential properties. Whilst failure has not yet occurred, with increased size and age there is a higher probability of future failure. However, it should be noted that where trees are sheltered from the elements then the risk of failure is greatly reduced.
- Whilst ADB has been identified with many being vulnerable to the disease and most showing advanced stages of decline there is still a high probability of either injury, damage to infrastructure and disruption to the highways prior to the next inspection.
- Drought stress can be a precursor to other diseases resulting in premature fatality.
- The removal of many trees will greatly increase the remaining to wind throw due to their sudden exposure to the elements.
- Veteran tree management is required to prolong the life expectancy of these special trees.
- Lapsed pollards and coppicing can greatly reduce a trees life potential.
- Several large trees overhanging high occupancy residential housing could not be assessed due to the lack of access due to dense vegetation, similarly epicormic restriction of the VTA process.

6.2 Trees with mechanically weak structures pose a threat of damage or injury which can be seen both from within the grounds and with third party trees. Whilst failure has not occurred with some trees, this does not mean failure will not happen. Where there are trees and people then there will always be an element of risk, managing this risk is paramount and can sometimes be abated.

6.2.1 Several large mature trees were noted as having mechanically weak structures. The removal of so many trees could be detrimental to the remaining large ones, especially where they have high occupancy sensitive targets. Therefore careful thought must be given by management before any trees are removed.

6.3 Any development near to trees must be carried out under guidance from British Standards BS 5837, Trees in relation to design, demolition and construction – Recommendation 2012. Failure to carry this out can cause irreversible stress affecting the trees root system, destabilising the tree causing entire tree failure. Concerns for T69 with the development of a sports hall and a swimming pool of which fall within the tree Root Protection Area (RPA) need to be addressed.

6.4 The presence of ADB will highly likely see all of the ash succumbing to the disease, however, the remainder are also susceptible to the disease. A link at the rear of the document will help explain the different stages of decline.

6.4.1 A high number of ash have succumbed to ADB and quite a number of these are large and are overhanging public highways and footpaths. However, where the occupancy is low, the trees could remain and be monitored for further decline. Where trees are dangerous and clearly past the point of recovery with targets being 1.5 distance of the tree height, then they should be made safe. Where possible nature poles should remain to provide wildlife habitats. This may be the case with several veteran ash in open areas.

6.4.2 Issues with ADB will arise fro.m the risk and danger of failure due to the brittle nature of the tree. This leads to other issues such as increased costs for removal and making these trees safe, additionally the increased danger and the high demand for qualified, insured and experienced tree surgeons.

6.5 Failure to address compaction with trees within the car park will see the gradual decline of trees. This appears to have been happening in the last few years where drought conditions throughout the UK have been seen. Proactive management with the mature trees shall be an ongoing project.

6.5.1 Mulching of the soil with composted organic matter can provide many benefits to tree growth. Over time, mulching helps to rebuild soil structure and improve the root environment.

- Conservation of moisture in the surface soil.
- Moderation of soil temperature.
- Reduction of soil compaction by traffic.
- Reduction of soil erosion.
- Improvements to soil structure and fertility.
- Protection of roots from mechanical damage
- Reduction of weed growth.

6.5.2 Air injection of high-pressure air into soil, to create cracks and fissures has been advocated as a means of relieving soil compaction and associated problems with aeration and drainage. Several systems are commercially available, but research into the benefits of air injection for growth has produced mixed results.

6.5.3 Air under pressures of typically 6 to 20 bards is discharged into the soil at depths of up to about 75cm through a spike inserted into the soil. The short burst of air causes displacement of soil, creating fissures. Fill materials such as styrofoam beads, perlite or vermiculite can also be infected, in theory to keep fissures open.

6.6 The woodlands, have in parts, been thinned and replanted in areas where tree loss is apparent. This is essential to ensure age and species diversity and the longevity of the woodlands.

6.7 **Zoning**

6.7.1 It has been highlighted in the tree industry with regards to the HSE that safety with organisations who have large areas of land containing trees that are frequented by the staff and public must have a system in place that would include a system of works for inspection. This will include recording of actions, the prioritisation of “Zoning” areas and a record of who, when and where was inspected. All the relevant forms are listed in the appendix, below lists more specifically what is required.

6.7.2 The “Zoning” will help to prioritise the frequency of inspections that the staff must undertake weekly, monthly or 6 months. This will also dictate the urgency of the tree work and how soon it should be carried out. Mapping of the zoning can be easily produced and can be altered if otherwise decided by the staff or situations change with regards to development.

6.7.3 Due to the ever changing environment and target areas it would be advised that the site have a level 1 inspection and be walked and inspected prior to events (Zone 1), 6 monthly (Zone 2), yearly (Zone 3) or all three after the event of any storm. He\she would be looking for any biological or mechanical issues such as the uprooting of trees, fungi on the ground or on the stem or crown, cracks, flaking bark, dead and hanging branches. This list is not exhaustive, the VTA (Visual tree assessment) form can be used as guidance.

6.7.4 A record of all inspections and findings must be kept. This must contain a record of inspections, dates for the work to be carried out and have recommendation of work and a system of inspections. Two tree inspection forms have been designed for qualified staff to use for record keeping. The first type of record of the walk/driveby survey level 1.

6.7.5 The second is required if something has been highlighted for further inspection level 2, something that management may make a decision on. If a further more detailed inspection may then still be required then a level 3 inspection by a suitably qualified arborist be used, this may require the use of advanced decay detection equipment.

6.7.6 The above zoning and inspection time scale is not a precise recommendation, more as guidance. What is imperative is that inspections are undertaken, recorded and the work carried out in a uniform fashion.

7.0 Recommendations

7.1 Depending on the occupancy of the target areas then reassessment should be performed every 15 months which would allow the assessor to view trees over different seasons of their annual cycle (dormancy in winter, bud burst in spring, full leaf in summer, leaf drop and fungal activity in autumn). This will allow the inspector to view the ash trees and their stages of decline. If there are any questions regarding the removal of compaction then this should be communicated with a suitably qualified arboricultural consultant as opposed to a tree surgeon. It is paramount that the tree work stated in Appendix B Tree Schedule be carried out in the time frames stated. In general the recommendations are as follows:

- Walking the site after a storm, strong winds and heavy prolonged spells of rain, checking for potential issues / changes in the tree population. (Zoning)
- Tree planting to mitigate tree loss, to create greater screening and to increase the age and species diversity. This must involve post planting maintenance.
- Prevention of heavy footfall and vehicle access around the rooting areas of trees (see below).
- Have a strategy to deal with ADB on trees.
- Removal of compaction in key areas.
- Management of lapsed pollards.
- Removal of dense vegetation to allow for access to trees, similarly the removal of epicormic growth will allow for a full assessment.
- Any demolition, landscaping or construction around trees requires a BS5837 Tree in Relation to Demolition, Design and Construction Recommendations 2012 survey and report. The evidence that these recommendations have been correctly performed with the development around T98 beech *(Fagus sylvatica)* and T99 horse chestnut *(Aesculus hippocastanum)* must be provided. This may be in the form of photography or the written working documents.

Signed  Date 24th October 2023

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Arboricultural Association Professional Member

ISA Qualifications

QTRA Licensed User

Consulting Arborist Society Professional Member

8.0 Disclaimers

8.1 This survey was carried out from ground level. No aerial inspection was undertaken and, as such, this report can only identify defects clearly visible from the ground. A VTA (Visual Tree Assessment) is a level two arboricultural tree survey. This normally involves a full 360 degree visual of the buttress, stem and crown of the tree. While every attempt has been made to provide a realistic and accurate assessment of the trees' condition at the time of inspection, it may have not been appropriate, or possible, to view all parts or all sides of every tree to fulfil the assessment criteria of a risk assessment.

8.2 No tree is entirely safe given the possibility that exceptionally strong winds could damage or uproot even a mechanically 'perfect' specimen. It is therefore usually accepted that hazards are only recognisable from distinct defects or from other failure-prone characteristics of the tree or the site.

8.3 Underground services were not confirmed around any of the trees surveyed. The potential influences of trees upon building or other structures resulting from the effects of trees upon shrinkable load-bearing soils or the effect of incremental root growth are specifically excluded from this report.

8.4 The report reflects the tree stock as found on the day surveyed. Change of ground levels, soil conditions, surrounding tree cover or land use, or any ground works within the root zone of any tree may invalidate the content of this report. No root zone excavation was undertaken.

8.5 Change of circumstance as a result of unusual weather conditions may invalidate the content of this report. It is recommended that trees should be reassessed after strong gale, 39 – 46 mph wind Beaufort scale 8.

8.6 The content of this report is valid for 12 months from the cover date. Any works recommended for beyond this time period are based on expectations rather than in response to currently identified defects. Trees should have their condition re-inspected by a qualified arboricultural consultant within three years of this report being written.

9.0 Appendices

The system of Visual Tree Assessment (VTA) was practiced with the International Society of Arboriculture (ISA) Best Management Practice (BMP) and was used with the guiding principles of a Level 1 and Level 2 inspection.

The normal Level 2 “basic” assessment which involves a full 360 degree view of a tree crown, stem and potential rooting area could not always be carried out, especially where a tree population is located on third party land where access cannot be gained. These areas were inspected at a Level 1 “limited visuals”. This is deemed ample for its inspection due to the low occupancy of the areas beneath.

Levels of Tree Assessment

Level 1 Limited Visual Assessment; A visual assessment of an individual tree or a population of trees near a specified target, conducted from a specific perspective, in order to identify certain obvious defects or specified conditions. Observations are made from ground level or via a drone.

Level 2 Basic Assessment; A detailed visual inspection and assessment of a tree and the surrounding site, commonly found to possess a hazard. The basic assessment requires the tree risk assessor to complete a 360 degree view of the tree observing crown, stem and potential rooting area. Tree dimensions are recorded using hand tools and the trees in question mapped and listed on a schedule.

Level 3 Advance Assessment; An advanced assessment is performed to provide detailed information about specific tree parts, defects, targets or site conditions. Methods of advanced assessment can include climbing, decay detection and/or root excavations.

10.0 Bibliography

Collins field guide for trees of Britain and Northern Ireland - A. Mitchell

Pruning of trees and shrubs and conifers - Brown / Kirkham second edition

Principles of Tree Hazard Analysis and Management - D Lonsdale No 7

11.0 References

British Standards 3998 Tree Work Recommendations 2010

British Standards BS 5837, Trees in relation to design, demolition and construction – Recommendation 2012

British Standards 42020 Biodiversity - Code of Practice for Planning and Development 2013

British Standards 8545 Trees: from nursery to independence in the landscape - Recommendations 2014

International Society of Arboriculture Best Management Practice Tree Risk Assessment 2013

NTSG - National Tree Safety Group - Common Sense Risk Management of Trees

https://www.ancienttreeforum.org.uk/

12.0 Useful web links

Ash dieback https://treecouncil.org.uk/science-and-research/ash-dieback/public-guidance/

https://www.forestresearch.gov.uk/tools-and-resources/fthr/pest-and-disease-resources/ash-dieback-hymenoscyphus-fraxineus/

Common Sense Risk Management of Trees http://ntsgroup.org.uk/wp-content/uploads/2016/06/FCMS025.pdf

Grey squirrels https://www.woodlandtrust.org.uk/mediafile/100263520/ps-wt-2014-grey-squirrel-management-ps.pdf?cb=3819311e674241c0924fedcb48a432f9

Tree Planting Manual https://www.forestresearch.gov.uk/tools-and-resources/urban-tree-manual/

Ancient trees https://www.ancienttreeforum.org.uk/ancient-trees/protecting-ancient-and-veteran-trees/ancient-tree-care-management/

Soil compaction https://www.forestresearch.gov.uk/tools-and-resources/fthr/urban-regeneration-and-greenspace-partnership/greenspace-in-practice/practical-considerations-and-challenges-to-greenspace/soil-compaction-practical-considerations/

Farming around ancient trees https://www.ancienttreeforum.org.uk/wp-content/uploads/2021/11/ancient-and-veteran-trees-caring-for-special-trees-on-farms-1.pdf

Funding for Tree Planting

https://treecouncil.org.uk/take-action/grants-for-trees/

13.0 Photographs

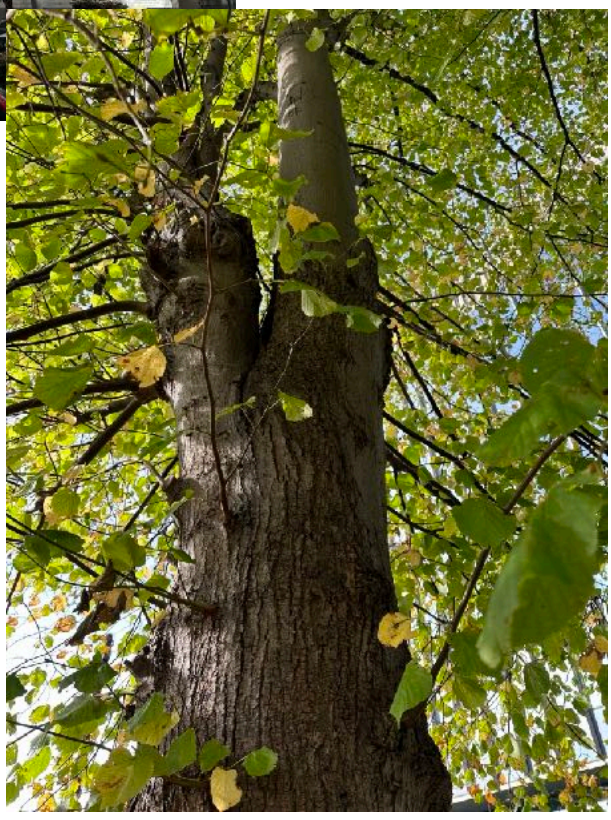
Top right shows the willow (T252) with multiple V shaped stems with mechanically weak structure which may be further compromised with a lapsed pollard at 2m. Whilst these are relatively protected from the elements, careful management must be applied to prevent wind throw potential.

Middle can be seen potentially dangerous brittle natured poplar trees with lapsed pollards overhanging parking.

Bottom right shows one of many lapsed pollarded lime trees with a typical V union with bark inclusion with a mechanically weak structure.





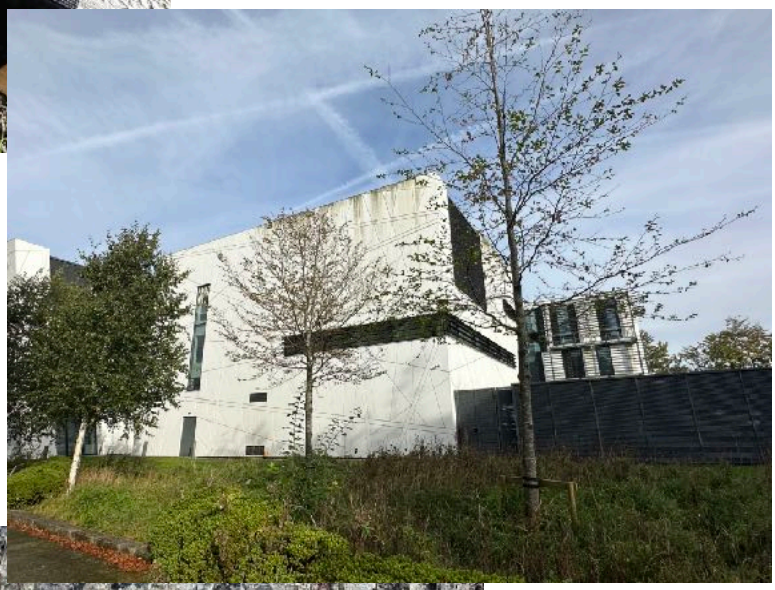




Top left is the picture shows recently planted trees still tied to their stems where removal of these ties should be 2 to 3 years after planting. Protection from grass maintenance as mowers and strimmer frequently ring bark these trees.

Middle picture highlights trees suffering from grass competition resulting in drought stress. L o w probability of survival unless action is taken.

Bottom can be seen Kretzschmaria deusta on a lime tree. This can be very difficult to identify, especially when species such as lime has dense epicormic growth restricting the visual assessment

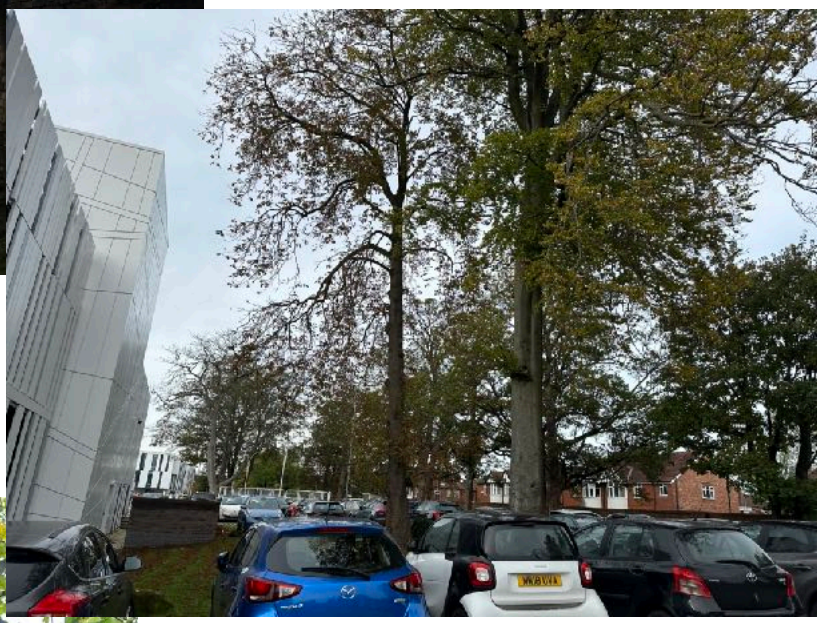


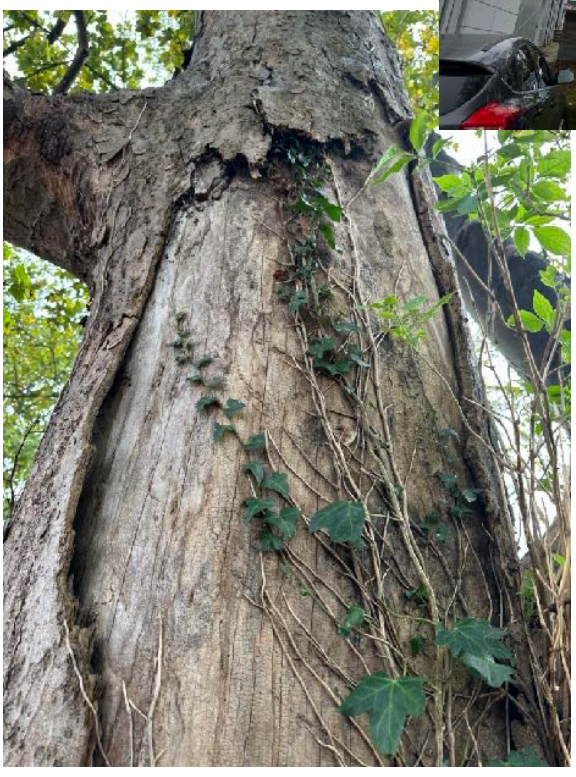




Left are a row of ash which have succumb to ash dieback *(Hymenoscyphus fraxineus)* now with limited life potential.

Below are trees in the eastern car park next to the recent development of the multi-storey. Tree size and the targets beneath should failure occur would be catastrophic. Were the trees protected under BS5837? In the background can be seen the sycamore T105 noted for removal as critical due to compaction with access to the multi-storey development passing over its roots, similar fate to most trees in this area.





Left is another dangerous sycamore impacted upon by the car park where large amounts of bark can be pulled off and a poor canopy cover suggest it has again succumb to heavy compaction.

14.0 Glossary

Abbreviation	Term	Explanation
DBH	Diameter at Breast height	The diameter of the tree trunk in question, 'breast height' is taken to be 1.3 metres above ground level. Multi-stem trees have their stems measured separately and indicated as so in the tree schedule. Trees with abnormal growths, branch unions or other obstructions at 1.3 m will have their measurements taken immediately below said obstructions.
VTA	Visual Tree Assessment	A system of tree inspection devised by Claus Mattheck using visual signs to read the body language of trees & aid with the diagnosis of potential defects.
Y	Young	Tree which has not yet established a significant rooting structure in the ground & has not developed a significant branching structure - its form is largely 'whip' like in nature & it could normally be easily transplanted or replaced.
EM	Early Mature	Tree which has established a significant rooting structure & has developed a noticeable internal scaffold structure, it differs from a mature version of its species only in size but not in relative proportions of its structure. Trees in this age class will still be developing significantly in height & spread.
M	Mature	Tree which has established a significant root-plate & which is over 50% of the way through its usual life expectancy. Trees in this age class will still be developing significantly in spread but less significantly in height.
OM	Over Mature	Tree which has fully established & will no longer be able to continue increasing in size due to its age, it may be showing signs of decline such as localised dieback but does not need to do so by definition. However it should be expected that signs of structural deterioration will soon become apparent.
V	Veteran	Tree which is showing veteran tree characteristics such as very significant crown retrenchment, extensive internal cavitation & possess significant cultural, ecological &/or historical value. Size is a common indicator of these characteristics but is not an essential requirement, for example, ancient coppices may possess veteran tree characteristics but may have a stunted form.
	Retrenchment	The progressive reduction in the size of the crown of an old tree, by means of the dieback or breakage of twigs and small branches, accompanied by the enhanced
	Codominant stem	Two stems on a tree which can suggest a weakened union V union with barkinclusion
	Minor Deadwood	Deadwood under 50 mm in diameter
	Major Deadwood	Deadwood which is equal to or greater than 50 mm in diameter
	Mycorrhiza fungi	A mycorrhiza is a symbiotic association between a green plant and a fungus. The plant makes organic molecules such as sugars by photosynthesis and supplies them to the fungus, and the fungus supplies to the plant water and mineral nutrients, such as phosphorus, taken from the soil.
	Abiotic	Damage caused by a physical nature rather than biological, no derived from living organism, abiotic chemical reaction
	Biotic	Relating to or resulting from a living organism, biotic interaction