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Arboricultural Impact Appraisal & Preliminary Arboricultural Method Statement

Q0138\34HavntRd\AIA+AMS(P)\PTI_V12021

Tuesday 20th July 2021

34
Havant Rd
Emsworth
Hampshire
PO10 7JG

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The statements made in this report do not take account of extreme weather events, rooting environment alterations, accidental damage, vandalism or works not carried out to industry recognised standards or best practice. Fallen&Found Arboriculture Ltd does not accept any liability associated with these instances. The validity of this report ceases after two years from the instance of the initial site inspection, or if the site conditions change as a result of unspecified works affecting the subject tree/s.

Quality Control			
Author	**Oliver Lower**	**Checked by**	**Stephanie Smith** (20\07\2021)

1. Introduction

1.1. Instruction

1.1.1. I have been instructed by you **Mr Lee Mandiwall**, to undertake an **Arboricultural Impact Assessment** (**AIA**) of a proposed development located at **34 Havant Rd, Emsworth, Hampshire PO10 7JG.** This assessment will examine the relationship between the proposal and the tree population growing at and within an influencing distance of the site. I have also been instructed to create a **Tree Retention/Removal Plan** (**TRRP**) & **Tree Protection Plan** (**TPP**) The purpose of these plans is to provide an accurate visual representation of the juxtaposition between the proposal and the retained tree population, as well as detailing the locations of trees which are to be removed, retained, pruned, and protected throughout the development process.

1.1.2. I have also been instructed by you to create a **Preliminary Arboricultural Method Statement** (**AMS**) for the proposed development. The purpose of this document is to outline the principal methodologies required to guide the proposal through development process in a sensitive, conscientious and arboriculturally acceptable manner.

1.2. Scope

1.2.1. All of my tree observations are of a preliminary nature, with the tree survey being carried out from ground level without any investigations using invasive or diagnostic equipment. All tree positions have been plotted without the use of a topographical/land survey using a laser measure and known fixed features at the site. I have not checked the accuracy of the positions of the trees, and I have estimated all dimensions unless otherwise stated.

1.2.2. This report is only associated with the arboricultural aspects of the site and does not relate to ecological or archaeological matters which may be present. This report and the assessments and methods prescribed or discussed within it have been constructed in accordance with **British Standards (BS) 5837:2012 "*Trees in relation to design, demolition, and construction – Recommendations.*"**

1.2.3. A full hazard assessment of the trees[1] has not been undertaken during this survey and it is considered to be beyond the scope of this report. Any obvious defects have been identified and included along with any pertinent recommendations relating to the remediation of tree-related risk are included in the BS 5837:2012 compliant tree survey schedule. The assessments contained within this report and all associated plans will be based upon the plans and information which have been provided to me by you.

[1] Including an assessment of internal decay or its significance

1.3. Document disclosure

1.3.1. You have supplied me with the following documents:

- 21020_414.pdf
- 21020_415.pdf
- 21020_Site and Other Plans.pdf
- 21020_Lower Issue.dxf
- 21020_Lower Issue.dwg

- Existing topo
- Proposed hard and soft landscaping
- Proposed parking access Plan
- Proposed drainage
- Proposed construction management plan

1.4. Land Survey

1.4.1. I have been provided with a CAD-based topographical land survey plan which details the locations of trees, foliage and relevant significant site details. This report and its associated plans have been written and constructed on the premise that this land survey is accurate. However, I cannot accept any responsibility for the accuracy of this information.

1.4.2. The assessments made in this document are based on the information and plans provided by you on the **1st** of **July 2021** and subsequent plans provided on the **9th** of **July 2021**. The conclusions, recommendations, and discussions presented in this report have been made using the BS 5837:2012; compliant tree survey conducted by myself on the **6th July 2021.** The plans I have prepared are constructed in a preliminary format which may be amended where appropriate during the design process.

1.5. Ecological constraints

1.5.1. Any works on or around any of the trees or hedges contained within or located outside of the site should bear in mind The Wildlife & Countryside Act 1981 as amended the Countryside and Rights of Way Act 2000. All wild birds are protected by the Wildlife and Countryside Act - 1981, Conservation - Natural Habitats -Regulations 1994 and Countryside Rights of Way Act – 2000. This makes it an offence to intentionally kill, injure, take, possess or trade-in any wild animal listed and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Bird Breeding season extends from the 1st of March to the 31st of July, as a result, all disturbing activities should be avoided during these times.

1.5.2. All species of Bat and their breeding sites or resting places (roosts) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2010 and Section 9 of the Wildlife and Countryside Act 1981. It is an offence for anyone intentionally to kill, injure or handle a Bat, to possess a Bat (whether live or dead), disturb a roosting Bat, or sell or offer a Bat for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by Bats for shelter, whether they are present or not.

1.5.3. These issues are outside of my area of experience and separate advice from a suitably qualified ecologist should be sought in the instance that any of these constraints apply to this site.

1.6. Qualifications and experience

1.6.1. The conclusions and recommendations contained in this report are formed from my own site observation and the provided information. The opinions expressed within it are based on my arboricultural experience. My qualifications and experience in arboriculture are included in **Section 5** at the end of this document.

2. Site and proposal

2.1. Site visit

2.1.1. I undertook a site visit on the morning of the **6th July 2021**. The purpose of this visit was to conduct a ground-level visual tree assessment survey, recording data and assessing the condition of the tree population within the immediate vicinity of the site. Appropriate tree categorisations were applied to each tree and suitable vegetation during this visit. The weather during the visit was overcast with persistent rain. Overall, the weather did not pose a significant constraint on the surveying process and most parts of the trees above-ground structures were visible during the survey.

2.2. Site location

2.2.1. The site is located to the south of Havant Road between Beech Road and Clovelly Road in the town of Emsworth, Hampshire. The site lies immediately adjacent to Emsworth Sports & Social Club.

Conditions	Result
Temperature	16°C
Cloud Cover	100%
Precipitation	50-90%
Humidity	80%
Wind Speed (Beaufort)	F3

Red line is indicative of site boundaries

2.3. Site description

2.3.1. The survey site is located within the property boundaries. The site itself is very large measuring approximately 0.9 acres. A large detached main house is located toward the northern end of the site. The main house consists of a detached flint and stone built three storey property which has been extended multiple times toward the east and south. An ex-dialysis treatment unit is located a short distance to the southwest of the main house where it is attached by a linked walkway. A brick paver driveway leads around the western side of the property toward a large rear garden. A swimming Pool and several other garden structures are present within the rear garden. The rear garden is primarily laid to lawn whilst the front garden area is extensively driveway and parking for the property. There are numerous trees of varying age and size growing throughout the site and are accompanied by several mature hedges and shrub/herbaceous beds

2.4. Proposed development

2.4.1. The proposal consists of the construction of 4 detached dwellings within the rear garden of the property.

3. Arboricultural Impact Assessment

3.1. Introduction

3.1.1. The purpose of this assessment is to examine the relationship between the proposal and its likely impact on the retained tree population, both at and within an influencing distance of the site. This assessment will also determine whether the proposed works can be conducted without adversely affecting the retained trees in the short and long term. Recommendations and mitigation will be suggested to reduce or remove the potential impact on the retained tree population and assist in the implementation of the proposal in the most arboriculturally acceptable manner.

This assessment will address the following items:

- **Potential damage arising from mechanical activities such as excavations and demolition.**
- **The installation of services and any trenching required facilitating this.**
- **Future tree growth**
- **Shading**
- **Potential future pressure on the retained tree population.**
- **Health, safety and seasonal nuisance.**

3.2. Tree retention/removal and pruning

3.2.1. All trees to be retained are set out in **Table 1** below. Any trees, hedges and groups required to be removed to facilitate the proposal are set out in **Table 2.** Any tree, group and hedgerow required to be pruned to facilitate the proposal are set out in **Table 3**.

Trees, groups and hedgerows to be retained.

Table 1 – Vegetation to be retained	Category A	Category B	Category C	Category U
Tree No's	N/A	T6	G6 T24 T25 T44 T46	T43

Trees, groups and hedgerows to be removed.

Table 2 – Vegetation to be removed	Category A	Category B	Category C	Category U
Tree No's	N/A	N/A	T3 T16 T17 G1 G2 G3 G4 G5	T14 T29 T31 T33 T45

Trees, groups and hedgerows to be pruned.

Table 3 – Vegetation to be Pruned/Part removed	Category A	Category B	Category C	Category U
Tree No's	N/A	N/A	G6	N/A

3.2.2. No high-quality (Category-A) trees have been identified as growing at or within an influenceable distance of the proposal.

3.2.3. A single moderate-quality (Category B) tree (**T6**) has been identified as growing at or within an influenceable distance of the proposal. All trees afforded these categorisations can be safely retained throughout the development process. Robust tree protective measures have been prescribed to safeguard these trees.

3.2.4. Fourteen low-quality (Category-C) trees and hedges have been identified as growing at or within an influencing distance of the survey site. Category-C trees are those which are considered to be worthy of only limited arboricultural merit and amenity value due to several factors. These factors include advanced age, the presence of significant biomechanical defects or young trees with a stem diameter less than 150mm. Category-C trees should not be considered for retention where they place a significant constraint on the design and development process. Nine of the low-quality (Category-C) trees and tree groups are required to be removed to facilitate the proposal. A single low quality tree group (**G6**) requires pruning to improve its aesthetic make up and to increase room at the front of the property.

3.2.5. Six unretainable (Category-U) trees have been identified by the tree survey. All unretainable category trees have significant irremediable structural defects, are in an advanced state of decline or are colonised by known tree pathogens. As a matter of course, Category-U trees should not be a material consideration in the planning process. Category-U trees are shown in red on the accompanying plans found in the appendices of this document. In this instance, the removal of these trees has been recommended due to poor biomechanical and biological condition, as well as the risk they pose to occupants, visitors, neighbours, and a busy pedestrian footpath and highway. A single unretainable (Category-U) tree (**T43**) is required to be retained due to its location growing within an adjacent property. The subject tree has exceptionally low vitality, sparse foliar density and extensive deadwood throughout its canopy showing obvious signs of advanced decline. In accordance with the British Standards, supplementary ground protection is required to be placed across the rooting zone of the tree where it projects into the site. A 3-dimensional cellular confinement system will be employed for this purpose allowing new hard surfacing to be installed in this located without the requirement for significant excavation.

3.2.6. Three large and prominent Oak trees (**T14, T31** and **T33**) are growing in a linear formation along the properties western boundary. All three of these trees were subjected to a PiCUS tomograph investigation in light of observable biomechanical defects, suspected internal decay[2] and the presence of known heartwood decay pathogens. The results of these investigations confirmed the presence of significant internal decay in each tree. Consequently, they have been downgraded to category-U in accordance with the British Standards[3] and recommended for removal. The methodologies, results, analysis, conclusions and recommendations associated with the inspoections conducted on the subject trees can be found in a report included within the appendices of this document[4].

[2] Initial mallet sounding of lower main stems.
[3] BS 5837:2012 "Trees in relation to design, demolition and construction – Recommendations."
[4] Appendix D

3.2.7. I have assessed the intial tree losses and tree pruning works associated with the development. This assessment has been made in light of the visual amenity of the site, the condition and form of the trees currently growing at the site, the overall tree character of the area and the health and safety considerations associated with the site's tree population. I consider the intitial tree losses and pruning to be in the best interest of managing the site's tree related risk level and the potential impacts the trees may have in the event of future failure. I consider this failure to be forseable based upon the results of the PiCUS investigation. Further tree removal is required to remove the potential risk associated with low-quality trees which will become exposed to unfamiliar dynamic windforce loading as a result of the loss of neighbouring companion trees. The majority of these trees growing in close proximity to larger trees have poor height/slenderness coefficient as a result of etiolated growth brought about by sthe suppression of their canopy development. Consequently, I do not consider the intial tree lossess associated with the devlopment to be disproportionate in light of the perceived risk level.

3.2.8. Considering the points discussed in this section, it is my professional opinion that the arboricultural impact of the proposal on the current tree population is broadly acceptable. I consider the prescribed tree removal to be justified in light of the serious irremediable defects which have been discovered and in order to ensure continued safety of neighbours, the public and staff during site operations.

3.2.9. In my proffessional opinion i consider the prescribed tree removal and pruning works to be necessary although they liely todetract from the overall tree character of the site and wider landscape. However, after assessment of the proepose hard and soft landscaping design[5] I believe there to be sufficient space for significant supplementary planting. As long as this is successfully employed, it will mitigate initial tree loss and pruning. A range of native, non-native and ornamental tree species ranging from standard to heavy standard may be planted within the site. Carefully considered supplementary planting will improve overall amenity, aid in the formation of a diverse tree population with a mixed demographic with greater resilience in light of perceived climate change. Any supplemental trees should be planted in strict accordance with ***BS 8545:2014 Trees: from nursery to independence in the landscape–Recommendations*** by fully qualified and experienced landscape or arboricultural contractors. Newly planted trees should be subject to a two-year aftercare program to ensure successful establishment.

3.2.10. Details on prescribed tree works along with the dimensions of each tree included within the project may be found in the **Tree Survey Schedule**[6] contained within the appendices of this report.

3.3. Additional implications arising from the development

3.3.1. Construction within the RPA

3.3.1.1. Damage to the rooting system of a tree can have a significant detrimental effect on a trees biological function. Processes such as mechanical excavations and resultant compaction can lead to loss of root system, anaerobic soil conditions and tree instability. The vast majority of a tree's roots proliferate within the first 600mm of soil. The majority of a tree's major roots are within the first 3m of the trees stem base, after this point, the tree root system is heavily branching and of a significantly smaller diameter.

3.3.1.2.

[5] CAAD Proposed Hard and Soft Landscaping 21020-411
[6] Appendix A

3.3.1.3. The formation of the south-western most parking spaces and driveway will require works to be conducted within the root protection areas of a single retained tree (T43). Thorough tree protective fencing, temporary ground protection and the use of a three-dimensional cellular confinement system will be employed to ensure that the proposal can be formed without significant long-term detriment to the retained tree population.

3.3.1.4. A three-dimensional cellular confinement system such as CellWeb[7] or Geoweb[8] shall be employed to form the bases of the Car parking areas and driveway within the proximity of T43. It is imperative that no significant excavation takes place within the root protection areas of the retained trees. The use of a three-dimensional cellular confinement system will allow a load-bearing surface to be constructed within the root protection areas of the retained tree without the requirement for significant excavation. The use of this system will allow for the safe passage of traffic whilst resisting compaction of the underlying soil horizons and allow for the free movement of water and oxygen. I have assessed the juxtaposition of the proposed new surfacing and the root protection areas of the retained tree.

3.3.1.5. The turf layer which currently covers the portion of the tree's theoretical root protection area will require removal prior to the installation of the geomembrane layer on which the three-dimensional cellular system is constructed. Tree and Grass roots rarely share the same soil horizon. Subsequently, a 5cm deep excavation to remove any turf layer is usually acceptable. It may be possible to excavate deeper than this in certain situations, depending on local conditions. Any undulations may be filled with a clean, no-fines, angular fill such as crushed stone or sharp sand to create a level surface. Filled materials will not be compacted. Any excavations at the site will be conducted using hand tools rather than employing the use of heavy machinery. Further appraisal of excavation depths and the use of filling material may be made during site supervision by the Arboricultural Consultant.

3.3.1.6. The selection of appropriate product thickness is an engineering matter. However, in principle Geosynthetics, 150mm or 200mm Cellweb® are rated for use as protection in areas with normal vehicular traffic. The product will be installed according to the manufacturer's instructions in the locations indicated on the Tree Protection Plan[9] contained within the appendices of this document. Any machinery used during the filling of the cells will work backwards across the product without entering unprotected ground or the root protection area of the retained tree.

3.3.1.7. There are multiple options for edge restraints and wearing courses which may be used in conjunction with the three-dimensional cellular confinement system. In this instance, a permeable asphalt\tarmac layer will be used. Edge restraints may consist of wooden sleepers, preformed metal edging or wooden gravel boards. Edge restraints will be installed without the requirement for excavation and held in place using either wooden or metal ground pins.

3.3.1.8. Tree protective fencing and a no-dig solution system have been prescribed. These measures will provide appropriate protection to the retained tree population. In my professional opinion, I perceive there to be a low risk of long-term detriment to the site's trees brought about by the development.

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[7] http://www.geosyn.co.uk/product/cellweb-tree-root-protection
[8] http://greenfix.co.uk/product/geoweb-tree-root-protection-system/?gclid=CjwKCAjwgabeBRBuEiwACD4R5hMtJxSPWjR6X7B_4QVfz0xIaMjas_M9QLGa2DeR4--xnYUSL4OZTRoCieIQAvD_BwE
[9] Appendix B, Tree Protection Plan (Q0138\34HavntRd\TPP_V1\2021) indicated as a hatched orange area.

3.3.1.9. Further details regarding works within the root protection areas of the retained trees can be found in the Preliminary Arboricultural Method Statement.

3.3.1.10. BS5837 compliant tree protective fencing will be erected prior to the commencement of the project. The fencing will be used to define a Construction Exclusion Zone separating the site's trees from any potentially damaging activities throughout the development process.

3.3.2. Movement of construction machinery and staff parking

3.3.2.1. The property driveway and existing asphalt surface will provide sufficient access and appropriate ground protection during the development. The property driveway and current parking spaces will provide sufficient parking for contractors and sub-contractors. Provision for staff parking should be provided by the site supervisor and contractor method statement. I perceive there to be a low potential for long-term detrimental effects occurring to the retained tree population resulting from the movement of construction machinery at the site.

3.4. Tree protection

3.4.1. The methods of demolition and construction may potentially have a detrimental impact on the biological function of the retained tree stock. With this in mind, thorough tree protective measures are required to provide adequate protection to the trees and to avoid potentially harmful incidents. In order to fully comply with BS 5837:2012 and to ensure that the retained tree stock is afforded the highest level of protection throughout the development process, appropriate Tree Protective Fencing is required to be installed in the locations identified in the Tree Protection Plan[10]. The locations of the Tree Protective Fencing are used to define a Construction Exclusion Zone (CEZ). This area is indicated as a blue-lined area on the accompanying Tree Protection Plan. Under no circumstances is any form of construction activity to take place within this area.

3.4.2. A pre-commencement meeting and regular site monitoring will ensure that the prescribed tree protective measures have been installed and will remain in situ in an undamaged functional condition throughout the construction process.

3.4.3. As long as the prescribed protection methods are correctly installed prior to the commencement of works, I perceive there to be a low risk of long-term detriment to the retained tree population arising from the proposed development. Further details regarding the tree protection measures prescribed for the site can be found in the **Preliminary Arboricultural Method Statement** section of this report.

3.5. Ground-level changes

3.5.1. Grade changes often occur during construction. Changes to soil heights have the potential to cause significant disturbance to tree roots and may damage their relationship with surrounding soil horizons. Lowering soil heights may lead to root severance and compaction both of which may have severe impacts on a tree's biological function. Increases in soil levels may cause anaerobic soil conditions which impede water permeation and restrict gaseous exchange. This may cause root death and stress to those trees affected.

3.5.2. The overall topography of the site is level, and no significant ground-level changes are proposed for the site. As a result, I do not perceive there to be a constraint arising from ground level changes and the proposal.

[10] Q0138\34HavntRd\TPP_V1\2021

3.6. Services

3.6.1. No new services are proposed to be installed within the RPA's of the retained trees growing at the site. There is scope to ensure that all new services and associated excavations can be orientated outside of, and away from any retained tree root protection area at the site. As a result, I do not perceive there to be a constraint arising from the installation of new services at the site.

3.7. The proximity of existing trees to proposed structures

3.7.1. Direct and indirect impacts of trees

3.7.1.1. Roots do not have the ability to directly damage heavily loaded structures, however, lightly loaded structures such as paths, small garden walls, and driveway surfaces may be disrupted by incremental root growth. I assume that the proposal will be designed and constructed with trees and potential future root growth in mind[11]. I have assessed the location, layout and composition of the proposal in light of the retained tree population. I consider the juxtaposition between the proposal and the retained trees to maintain appropriate separation. I do not anticipate any potential negative impacts arising from the proposal and its proximity to the retained tree population.

3.7.2. Seasonal nuisance

3.7.2.1. The proposal provides adequate separation from the sites tree population. I do not consider seasonal nuisance arising from leaf fall to be a constraint on the proposal. However, gutter guards and low maintenance gutter systems may be adopted to mitigate any future issues associated with leaf fall at the site.

3.7.3. Future pressure to prune or fell

3.7.3.1. There is little evidence to suggest that large numbers of trees are being lost through future pressure to fell or prune from property owners. Trees provide numerous benefits to occupied areas, most of which far outweigh the presumed disadvantages associated with them. In this instance, the juxtaposition between the proposed development and the retained trees takes into consideration the tree constraints and should not lead to future pressure to fell or prune any of the retained trees. As a result, any future tree pruning works are unlikely to be in excess of what would be considered as general maintenance.

3.7.4. Shading, orientation and windows

3.7.4.1. I have assessed the potential shading associated with the site and any fenestration associated with the proposed development. The proposed areas of development are located to the south and east oof all the retained trees growing at the site. Consequently, I do not perceive excessive shading to be a constraint on the proposal.

3.8. Conclusion

3.8.1. The proposal requires the removal of several large low-quality trees. I do not perceive the initial tree losses associated with the proposal to be disproportionate in light of their biomechanical condition. The tree losses associated with the proposal may be mitigated with the supplementary planting of young trees elsewhere within the site.

[11] NHBC Part 4 Foundations, Chapter 4.2 Buildings near trees.

3.8.2. A no-dig solution three-dimensional cellular confinement system has been specified to mitigate the incursion into the root protection areas of the retained trees. This product will also provide adequate ground protection during the development process. The product can be installed without the requirement for significant excavation within the root protection areas of the retained trees. The juxtaposition between the proposed proposal and the retained tree population maintains appropriate separation. The design of the proposal takes into account future tree root growth and seasonal nuisance. As a result, I do not perceive these to be a constraint on the proposal.

3.8.3. The juxtaposition between the proposed development and the retained tree population maintains appropriate separation. I have assessed the probability of future tree root growth and seasonal nuisance. In my professional opinion do not perceive either of these to be a constraint on the proposal.

3.8.4. Robust tree protective measures have been prescribed to provide protection to the retained tree population throughout the development process. As long as these measures are installed prior to all material deliveries and construction activities and Arboricultural Supervision is adopted during all potentially harmful activities, I perceive there to be little scope for long-term detriment to the retained tree population arising from the development. Considering the points discussed in this assessment, I perceive there to be no significant arboricultural constraints associated with the proposal.

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Preliminary Arboricultural Method Statement

34 Havant Road, Emsworth, Hampshire PO10 7JG.

Dated

20th July 2021

To be displayed prominently on-site and brought to the attention of all employees, contractors and sub-contractors

This document is to be used in conjunction with the following documents:

- **BS 5837:2012 Tree Survey Schedule**
- **Tree Retention\Removal Plan: Q0138\34HavntRd\TRRP_V1\2021**
- **Tree Protection Plan ref: Q0138\34HavntRd\TPP_V1\2021**

Note:
After approval from the Local Planning Authority, this Arboricultural Method Statement becomes an official document. Consequently, the methodologies prescribed within it must be conducted as stated and carried out to their fullest extent as described. A copy must be retained by the Site Supervisor for reference and made available at all times for employees, staff and sub-contractors.

1. Summary

The purpose of this method statement is to safeguard retained trees and their below and above ground structures. The recommendations made in this report aim to guide the construction process in areas near to, or within the root protection areas of retained trees. The second purpose of this method statement is to minimise the impact of construction activity on the tree population retained on site. The excavations made for the construction of foundations on any site where trees are present may lead to the damage and removal of roots. Any form of damage or root loss should be avoided where possible. Where the likelihood of this is high, a methodology of construction which minimises the impact of root damage/loss is required to be followed.

This Arboricultural Method Statement has been constructed in accordance with **BS 5837:2012 "Trees in relation to design, demolition and construction – Recommendations."** Further guidance has been taken from the following documents:

- **BS 3998:2010 "Tree Work – Recommendations."**
- **National Joint Utilities Group "Guidelines for the planning, installation and maintenance of utility services in proximity to trees, 1995."**
- **Trees in Hard Landscapes: A Guide for Delivery.**
- **Trees in Focus, APN12, Through Trees to Development**
- **BS 8545:2014 Trees: from nursery to independence in the landscape-Recommendations.**

2. Site-specific considerations

All construction activity must be excluded from the root protection areas of the retained trees. Unless specified in detail within this document. The root protection area of each retained tree is outlined as a **Grey Hatched** dodecagon as indicated on the accompanying plans. A **Construction Exclusion Zone** (CEZ) marked as a blue striped area has been defined and displayed on the accompanying **Tree Protection Plan**. No form of activity is to take place within this zone during the demolition or construction phases of the proposal.

All agreed tree works and tree protective measures must be conducted and in situ prior to the commencement of the development process including the delivery of materials to the site. Full details regarding the extent of each tree root protection area can be found in the **Tree Survey Schedule** section provided in **Appendix A** of this document. Details regarding the prescribed tree works may also be found in the same section. Initial access to the site can be achieved via the pre-existing access driveway and access gate. No heavy machinery including dumpers, excavators or tracked vehicles is to enter the site during the tree works phase. Arisings can be removed from the site by hand and with wheeled vehicles. These vehicles must not operate within the root protection areas of the retained trees.

3. Sequencing, monitoring, and supervision

In order to ensure that the tree protection measures and methodologies prescribed by this method statement are conformed to, it is my recommendation that a series of monitoring intervals and regular site visits be established. All works which have the potential to harm trees may require arboricultural supervision. Regular site visits will be recorded by the Arboricultural Consultant, a copy of the site inspection form can be found in **Appendix C, Figure 4**. Recorded site visits will be attached to the AMS and remain available for inspection during the construction process.

In my opinion, the following events listed below require arboricultural supervision:

Event	Supervision	Reason
Pre-commencement meeting	Arboricultural Consultant, Contractor, Client and LPA representative	To agree on tree works, protective measures and any other site constraints
Erection and installation of Tree Protection Fencing (CEZ[12])	Arboricultural Consultant and Contractor	To ensure correct instalment in prescribed locations. To sign off work and inform LPA.
Installation of 3D cellular confinement system and carport structure	Arboricultural Consultant and Contractor	To ensure correct instalment in prescribed locations. To sign off work and inform LPA.
Main construction process	Arboricultural Consultant and Contractor	To ensure an arboriculturally acceptable method of construction is maintained throughout.

3.1. Auditing and inspection regime

An inspection regime or schedule of monitoring should be agreed upon during the pre-commencement meeting between the Arboricultural Consultant, LPA Representative, Contractor and Client. A detailed record of site visits and monitoring during sensitive site operations shall be collated using the **Arboricultural Consultant Site Visit Form** included in **Appendix C, Figure 4**. The AC site visit form will be used to inform the LPA after every site visit and throughout the development.

[12] Construction exclusion zone

4. Sequenced methods of construction and tree protection

4.1. Pre-commencement meeting

Arboricultural supervision required

An onsite meeting will be held, attendees will include all relevant parties. Parties should include the appointed Arboricultural Consultant, the developer and local planning authority representative. The purpose of the site meeting is to agree on the formalities of the proposal, agree on tree works, the location of access both permanent and temporary, site storage locations, the location of tree protection barriers, time schedules and any other arboricultural constraints the site may pose.

4.2. Conduct agreed tree works

A detailed schedule of the prescribed tree works associated with the site can be found in the accompanying **Tree Survey Schedule, Appendix A**. All tree works should be conducted by a fully qualified and insured arboricultural contractor conforming to **BS 3998: 2010 "Tree Work – Recommendations**." The contractor should prepare and fill out all necessary Site-Specific Risk Assessments and Method Statements appropriate for the task/tasks and adhere to current health and safety standards. A list of Arboricultural Association approved contractors can be found on their website www.trees.org.uk.

All contractors should implement appropriate Biosecurity measures. The Arboricultural Associations, Application of Biosecurity in Arboriculture, Guidance Note 2[13] provides guidance on the responsibilities of Tree Work Contractors. All arisings should be processed and removed from the site. All removed arisings should be disposed of in an environmentally sensitive manner.

The locations and individual identification numbers for each tree included within the tree survey conducted at the site can be found in the **Tree Survey Schedule** contained within **Appendix A** of this document. A copy of the tree survey schedule and **Tree Retention/Removal Plan (Q0138\34HavntRd\TRRP_V1\2021)** should be provided to the appointed Tree Contractor by the Site Supervisor. **At no point may any part of a retained tree be cut or pruned by staff, contractors or sub-contractors.**

4.3. Erect tree protection barriers and temporary ground protection

Arboricultural supervision required

Tree protective measures must be installed prior to:

- Site and ground clearance
- The delivery of materials and plant to the site.
- Grading of soil heights
- Demolition of existing structures or the removal of hard surfacing.
- Construction in any form.
- The installation of services or drainage.
- Landscaping works.

[13] https://www.trees.org.uk/Help-Advice/Biosecurity

4.3.1. Form

Tree protection barriers are to be erected in the locations specified in the **Tree Protection Plan** (**Q0138\34HavntRd\TPP_V1\2021**) provided in **Appendix B** of this document. The protection barriers will conform to the guidelines set in **BS 5837:2012 "Trees in relation to design, demolition and construction – Recommendations.** The tree protective barrier fences will consist of weld mesh panels affixed to a braced vertical and horizontal scaffold framework as indicated in **Appendix C, (Figure 1**) of this document. A supplementary layer of netting should be attached to the outside of the tree protective barriers to inhibit spoil or other material passing through the weld mesh panels and into the protected rooting zones of the trees. All-weather warning signs such as those in **Appendix C, (Figure 3)** are to be placed upon the fencing every 10m. The purpose of these signs is to inform staff and contractors as to the purpose of the tree protective barriers.

Due to the minor scope of development associated with the proposal and inherent cost of the default tree protective fence recommended by **BS 5837:2012 "Trees in relation to design, demolition and construction – Recommendations,** it is my recommendation to downgrade this to the alternative Tree Protective Fence found in **Appendix C, (Figure 2)**. The installation of this form of fencing negates the requirement for excavation associated with its installation.

4.3.2. Location

The locations of the tree protective barriers and temporary ground protection are indicated on the accompanying **Tree Protection Plan** (**Q0138\34HavntRd\TPP_V1\2021**) provided in **Appendix B** of this document. The locations of tree protective measures should be assessed in light of potential underground services. I have made no assessment of potential underground services in the proximity of the prescribed tree protective measures. The presence of underground utilities should be ascertained by the contractor prior to the installation of the tree protective measures.

In the instance that underground services are present in the locations where the tree protective measures have been prescribed the alternative Tree Protective Fence specification found in **Appendix C, Figure 2** should be used. The alternative Tree Protective Fencing should be incorporated into the default fencing and secured at either end. In certain circumstances, it may be appropriate to incorporate site boundary fences, hoarding or temporary site offices. This must be confirmed with the LPA and be installed/removed without causing damage to the retained trees.

4.3.3. Setting out

The setting out of tree protective fencing and temporary ground protection should be conducted by the contractor and Arboricultural Consultant. Its position is to be demarked using biodegradable marker paint according to the dimensions specified in the tree survey schedule. Erection of all tree protective measures will take place prior to any works other than the prescribed tree works occurring. This includes demolition and delivery of materials, plant or equipment. Once erected, all tree protective measures are to be treated as **Sacrosanct** and under **NO** circumstances moved without consulting the Arboricultural Consultant and the notification of the Local Planning Authority. Any alteration to any form of tree protective measures utilised at the site throughout the entire development process will first require the written permission of the LPA.

4.3.4. LPA Involvement

The Local Planning Authority should be informed by the appointed Arboricultural Consultant of installation and construction of the tree protective barriers once they are in situ and prior to the commencement of any development activities at the site.

4.3.5. Construction Exclusion Zone

The final location of the tree protective barriers will be used to define a **Construction Exclusion Zone.** The **Construction Exclusion Zone** is identified as a blue striped area in the accompanying **Tree Protection Plan** (**Q0138\34HavntRd\TPP_V1\2021**) provided in **Appendix B** of this document. The purpose of this zone is to ensure that the protected trees and their rooting zones remain undamaged throughout the development process. The tree protective measures prescribed within this report and detailed in the accompanying **Tree Protection Plan** must be installed and remain in situ until all construction activity at the site is complete. This includes all landscaping and associated operations.

4.3.6. Prohibitions

The following activities must ***NOT*** be allowed to occur inside of the **Construction Exclusion Zone**:

- ***The raising or lowering of soil levels***
- ***The positioning of machinery of any size,*** unless temporary ground protection has been installed, approved and recommended within this Arboricultural Method Statement or previously agreed by the appointed Arboricultural Consultant and LPA.
- ***Mechanical excavations of any kind***
- ***Excavations conducted by hand*** (unless specifically approved within this Arboricultural Method Statement).
- ***The construction of foundations*** (unless specifically approved within this Arboricultural Method Statement).
- ***Excavations for the installation of services including drainage or conduits*** (unless specifically approved within this Arboricultural Method Statement).
- ***The storage of plant, machinery or tools*** unless temporary ground protection has been installed.
- ***The storage of spoil*** unless temporary ground protection has been installed.
- ***Vehicular access*** unless temporary ground protection has been installed.
- ***The mixing of materials, spillage or discharge of chemicals or harmful substances.***
- **Fires** where unavoidable must be positioned outside of root protection areas and so that they cannot conduct heat on to the above-ground structures of the retained trees.
- **Signs, service cables or other items** will not be attached to any part of any tree being retained.

4.4. Staff parking, storage of materials and chemical mixing

Site parking for contractors, staff and visitors should be set out in the contractor's contingency plan. Any areas used for such purposes must be located outside of the root protection areas of the retained tree population or on a suitably protected ground. Provision should be made by the main contractor for dealing with vehicle spillages i.e., the use of spill response kits or protective bunding. All areas used for the storage of materials including cement, fuels, bitumen, paint, plaster, timber, machinery etc and any other hazardous materials are to be located a minimum distance of 10m from any tree root protection area at all times. A precautionary bund consisting of an earth bund lined with a heavy-duty plastic liner is sufficient to prevent contamination of RPA's and surrounding soil horizons.

4.5. Installation of the no-dig three-dimensional cellular confinement system

Arboricultural supervision required

In order for the proposed carparking spaces and driveway to be formed in an arboriculturally acceptable manner, a three-dimensional cellular confinement system is to be used. The installation of products varies slightly and should be installed according to the manufacturer's instructions. However, in the instance that this is not available, the following methodology should be followed.

The locations of the new carparking spaces and driveway shall be marked out using biodegradable spray paint or string lines and pegs. The location of the Carport should be investigated for the presence of underground utilities. Any underground utilities which are located should be also marked out in the same way.

The existing turf layer and any other vegetation shall be carefully removed using a turf iron, shovel or spade. Due to the size of the area to be stripped, it may be appropriate to employ the use of a small mechanical turf cutter. No excavations during this process are to exceed a maximum depth of 50mm. All turves/sod and other cut vegetation is to be removed by hand and removed from the site.

Any undulations, ruts and high spots shall be assessed by the project Arboricultural Consultant. High spots may be reduced by hand if deemed appropriate by the Arboricultural Consultant. Deep ruts and undulations shall be made up to any high spots using granular, permeable fills such as crushed stone or sharp sand to achieve a level surface. Any materials used for filing shall be brought onto the site using wheelbarrows and levelled using hand tools. No mechanical compaction of the fill or exposed ground is to take place.

The exposed ground will be covered by a layer of geotextile membrane or another permeable membrane in accordance with the manufacturer's recommendations. The geotextile layer shall be pinned in place retaining an overlap of 300mm. Ground pins, plastic pins or wooden stakes shall be used to hold the geotextile in place.

Prior to the installation of the cellular confinement system, it may be appropriate to fill deep undulations or ruts with sections of cellular confinement system. In these areas the system should be cut to size, layered and filled with appropriate granular fill to create a level finished surface. The second layer of geotextile separation fabric must then be stretched across the first layer to stop the migration of fills between the layers. This layer should be fixed in place using the same pins and cut to shape accordingly.

The cellular confinement system shall be installed and fixed in place in accordance with manufacturers guidelines. The edges of the cellular confinement system shall be defined using either timber boards or railway sleepers laid at ground level. No excavations are to be undertaken during the installation of the edging. The edging may be fixed in place using steel pins or wooden stakes.

Once installed, the cellular confinement system will be filled using clean granular aggregate as specified by the manufacturer. Angular stone chips with a nominal size of 20-40mm are the usual fills appropriate for filling the cells of the system. It is imperative that the granular fill does not contain fines (binding material), soluble materials or limestone.

Filling of the cellular confinement system may be undertaken using machinery. The machinery employed during this operation must operate from the existing hard surfacing working backwards across the cellular confinement system sections. It is important to ensure all of the cells have been filled to capacity. A landscaping rake or shovel should be used to ensure the edges of the product are fully filled.

Once the cellular confinement system has been filled with aggregate it should be rolled using hand rollers or a small, mechanised roller.

A layer of geotextile membrane shall be laid over the filled cellular confinement system in accordance with manufacturers guidelines. A final wearing course which remains porous shall then be installed across the cellular confinement system. It is imperative that this final layer remains porous to allow the percolation of water, nutrients and gaseous exchange between the soil and atmosphere.

Any deviation on works being conducted within the RPA of any retained tree at the site will require the consultation of the Arboricultural Consultant.

4.6. Main construction process

The site manager will be responsible for informing all staff, contractors, sub-contractors and visitors as to the importance and locations of the retained trees located at the site.

A normal method of construction can be adopted across the site where there is no impingement on tree root protection areas. These areas have been plotted on the accompanying plans found in **Appendix B** of this document. The accompanying **Tree Survey Schedule** contains information on the dimensions of each tree's root protection area.

The site manager will instruct the appointed Arboricultural Consultant to attend site during any potentially arboriculturally sensitive events. The tree protective measures and locations of storage materials including areas used for the mixing of chemicals will be checked regularly regarding the site's general operation.

All tree protective measures including barriers and ground protection must remain in situ in an unaltered condition unless written approval has been provided by the LPA.

Where scaffolding is to be erected close to a retained tree(s) it must be conducted after the consultation of the appointed Arboricultural Consultant and installed as per his/her advice. Once in situ its construction and location shall be recorded photographically and used to inform the LPA where potential tree-related conflicts arise. As the location of scaffolding is not yet confirmed, this process of monitoring will reduce the potential for tree-related harm and maintain an informed relationship between the project and LPA.

Fires on the site will be avoided unless absolutely necessary. Where fires are unavoidable, they should be positioned where heat cannot conduct onto nearby trees and affect their foliage, rooting environment or structures. All fires should be attended at all times and extinguished before being left.

A 10m separation between any tree retained at the site during the mixing of cement. This 10m separation shall also be maintained between storage areas containing cement or other potentially harmful substances such as fuels, tar, oil, builders' sand and cement washings.

Care should be taken when planning site operations in close proximity to trees. This includes the passage of machinery and the lifting of objects and materials. The appointed arboriculturist should be informed when potentially harmful operations are likely to occur during the construction process. A banks man should be employed to monitor excavations and ensure that mechanical damage does not occur to trees or protective barriers. In the instance that tree protective measures, including fencing and ground protection, are damaged at any point during construction activity, the Arboricultural Consultant must be informed immediately. Repairs to damaged tree protective measures must take place immediately under the supervision of the project Arboricultural Consultant.

At no point may any part of a retained tree be cut or pruned by staff, contractors or sub-contractors.

4.7. Construction of services

All utilities and underground services must be orientated outside of construction exclusion zones and away from tree root protection areas. Where installation within root protection areas is unavoidable, it must be conducted in accordance with the guidelines prescribed in **NJUG Volume 4 Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees** and under the supervision of the appointed Arboricultural Consultant after the Local Authority Tree Officer has been notified. A contractor's guide to the excavation of services around trees can be found at the following address: https://njug.org.uk/wp-content/uploads/2016/09/V4-Trees-Issue-2-16-11-2007.pdf.

Any incursion into the root protection area of retained trees for any purpose must be brought to the attention of the appointed project Arboricultural Consultant and Local Authority Tree officer as soon as possible. Where trenching within the root protection area of any tree, it should be conducted using air displacement technology[14] or by hand digging. Suitable hand digging tools include narrow spades, a post hole digger, fork and trowel. Hand digging is time-consuming and hard work. Consequently, Air Displacement technology should be used as a preference.

Hand digging shall be executed with a high level of care ensuring that tree roots are neither severed or damaged. Roots with a diameter smaller than 25mm may be severed using a **SHARP** set of bypass secateurs. Roots with a diameter greater than 25mm must not be severed without the consultation of the appointed Arboricultural Consultant. Tree roots with a diameter greater than 25mm should be worked around and protected once they have been exposed. A covering consisting of damp hessian should be placed around exposed tree roots in order to reduce the chance of them becoming dried out. Any protective coverings should be removed prior to the backfilling of any trenches.

Trenches should be backfilled carefully using a 50/50 mix of topsoil and sharp sand. Builder's sand should **NOT** be used due to its high sodium content. This mix should be placed into the trench using hand tools and gently firmed into place. The trench should be filled to the point of being proud of the original ground height, this will allow for natural settlement. Any disparity between original soil heights and trench fill should be made up with supplementary trench fill at a later date.

[14] Airspade

4.8. The dismantling of tree protective measures

Protective fencing and temporary ground protection will only be removed upon completion of all groundworks and prior to any final landscaping. The dismantling of fencing must be conducted by hand and in a conscientious manner taking care not to damage any of the retained trees. No machinery is to be used in the dismantling of the barriers and at no point may any form of machinery enter the root protection areas of the retained trees.

4.9. Erection of boundary fences

The installation of domestic fencing was required within the CEZ, once barriers have been removed shall be conducted by hand. The route of the fencing shall be marked on the ground using biodegradable marker paint or string line. No posts are to be installed within 1m of any retained tree stem.

All post holes will be dug by hand ensuring that they remain the minimal size practicable (10%) larger than the posts being inserted. All postholes within root protection areas are to be excavated by hand using hand tools and lined with an impermeable liner prior to the pouring of concrete.

Fencing must take into account the location of the trees and likely morphology of tree root structure. Fencing should deviate or bridge where necessary to ensure an appropriate distance is maintained from neighbouring trees.

All posts shall be installed and back rammed using the excavated soil to secure them. All rails shall be brought onto the site by hand and affixed to the posts during the works. No storage of fencing materials is to take place during the works.

4.10. Soft landscaping and new planting

Before the start of construction, it is advisable to set aside areas where new planting is proposed. These areas can then be protected to ensure that the soil horizon into which the new planting is established is not compacted. Areas, where soil compaction has taken place but are proposed for replanting, will require soil amelioration prior to planting. Soil decompaction using soil displacement technology such as Air spading will be necessary to improve the rooting environment of new trees and shrubs prior to their planting.

The deep cultivation of soil within the tree root protection area must be avoided unless conducted carefully by hand. Machines such as rotavators are **NOT** to be used for the cultivation of soil in close proximity, or within tree root protection areas.

Herbicides used for the killing of unwanted herb layer should be appropriate for their intended use and applied by a fully qualified contractor taking special care not to spray or damage any of the retained trees. Dead vegetation should be removed carefully by hand without the use of machinery. No penetration of the soil below the unwanted vegetation may occur during this process.

New beds and areas of new planting should in principle be mulched using a 100mm deep well-composted organic woodchip mulch. This layer will reduce weed growth and retain moisture for new planting.

Mulch layers should be topped up accordingly to maintain an effective thickness of 100mm at all times. No irrigation or drainage pipes are to be installed within the root protection areas of the retained trees.

New tree planting should be carried out in strict accordance with **BS 8545:2014 Trees: from nursery to independence in the landscape-Recommendations.** Appropriate support measure should be employed for all new trees at the site. This should also conform to the specification contained within **BS 8545:2014**. All new tree planting should be subject to a minimum of a two-year aftercare plan in order to ensure the successful establishment of new trees.

4.11. Amendments

Due to the nature of development issues sometimes arise which may require the amendment of previously agreed tree protection details or methods of working. In this instance, any alterations must be discussed with the appointed Arboricultural Consultant and approved in writing by the LPA prior to being implemented. Copies of amendments must be retained and attached to the site copy of the AMS as a definitive record of what has been agreed.

4.12. Communication details, monitoring & compliance

All relevant parties will be informed as to any amendments to the design or proceedings throughout the duration of the project.

Arboricultural Consultant: Oliver Lower | Fallen&Found Arboriculture Ltd
Tel: 07564346560
Email: oliver@fallenandfound.co.uk

Local Planning Authority: Havant Borough Council
Tree Officer: Jamie Gargett
Tel: 02392 446525
Email: jamie.gargett@havant.gov.uk

An Arboricultural Consultant should be retained during the entire development process. Their roles will be as follows:

- Supervision by an Arboricultural Consultant is to take place during any excavation near to any retained trees or in proximity to existing RPA's.
- Weekly site inspection should take place and include monitoring of tree protection fencing, ground protection measures and Construction Exclusion Zones. Site visit times will be recorded using the form provided. **Appendix C, Figure 5.**
- Photograph the site and the protection methods employed in order to inform the LPA that works are being conducted in accordance with the methodology prescribe within this report.

Appendix A

Tree Survey Schedule

BS5837:2012 Tree Survey

Fallen&Found Arboriculture Ltd
2
Selsdon Avenue
Romsey
Hampshire
SO51 7PL
Phone: 01794 502101

Client: Critchley Architecture & Design
Project: Q0138 34 Havant Rd 2021
Survey Date: 08/06/2021 - 06/07/2021
Surveyor: Oliver Lower

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
G1 N/A										Estimated Measurements	
A Hedgerow - *Spp.*	2.5	1	40	N E S W	1 1 1 1	M	A: 0.7 R: 0.47	Fair	C: Fair S: Fair B: Fair	Fell :: Fell to ground level *Hedgerow to be felled and replaced with fencing.* A mixed hedgerow.	C.2 10 to 20 yrs
G2 N/A										Estimated Measurements	
A Group - -	3	1		N E S W	3 3 3 3	M	A: 0 R: 0	Fair	C: Fair S: Fair B: Fair	Fell :: Fell to ground level *Group to be felled to facilitate construction.* A group comprising of Rose, privet and hazel.	C 10 to 20 yrs
G3 N/A										Estimated Measurements	
A Group - -	6	1	250	N E S W	3 5 3 2	M	A: 28.3 R: 3	Poor	C: Poor S: Poor B: Poor	Fell :: Fell to ground level *Fell to facilitate construction.* A group of Willow, plum and ivy. Group inundated with Ivy.	C 10 to 20 yrs
G4 N/A										Estimated Measurements	
A Group - -	2	1	75	N E S W	2 2 2 2	M	A: 2.5 R: 0.89	Fair	C: Fair S: Fair B: Fair	Fell :: Fell to ground level A mixed species linear group of shrubs in varying states of biological condition. Fell entire group to facilitate construction of driveway.	C.2 10 to 20 yrs

Age Classifications: N Newly planted; EM Early Mature; Y Young; M Mature; SM Semi-mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
G5 N/A										Estimated Measurements	
A Group - -	6	1	180	N 3 E 3 S 3 W 3		OM	A: 14.7 R: 2.16	Fair	C: Fair S: Poor B: Fair	Fell :: Fell to ground level *Fell to facilitate consrtuction of driveway.* A tree group comprising of overgrown Bay, Holly and Portuguese laurel. Group has low amenity value and is outside of a regular management cycle.	C.2 10 to 20 yrs
G6 N/A										Estimated Measurements	
A Group - -	8	1	180	N 2 E 2 S 2 W 2		OM	A: 14.7 R: 2.16	Fair	C: Fair S: Fair B: Fair	Fell :: Fell to ground level A tree group consisting of photinia, Portuguese laurel and Bay. Tree group is overgrown and has been subject to numerous past pruning operations. group has low amenity value.	C.2 10 to 20 yrs
T3 N/A										Estimated Measurements	
Sycamore *Acer pseudoplatanus*	15	1	360	N 6 E 3.5 S 2.5 W 3	5 3 2 3	Y	A: 58.6 R: 4.31	Fair	C: Fair S: Poor B: Fair	Fell :: Fell to ground level Tree has one-sided canopy overhanging carriageway. Fractured compression fork at 1.5m on main stem. Tree requires felling due loss of neighbouring trees.	C 10 to 20 yrs
T6											
Copper Beech *Fagus sylvatica 'Purpurea'*	24.1	1	940	N 9.6 E 7 S 8 W 8.6	8.89 4.5 6.5 7.15	M	A: 399.8 R: 11.28	Good	C: Fair S: Good B: Good	Protection :: Erect protection barriers Large prominent tree with normal vitality, form consistent with species and past management practices.	B.2 20 to 40 yrs
T8 N/A										Estimated Measurements	
Common Lime *Tilia europaea*	15	1	210	N 3.5 E 1 S 0 W 1	3 3 0 3	Y	A: 20 R: 2.52	Poor	C: Poor S: Fair B: Fair	Fell :: Fell to ground level The tree has poor height slenderness ratio, heavily one sided canopy. lots of competing vegetation.	C 10 to 20 yrs

Age Classifications: N Newly planted; EM Early Mature; Y Young; M Mature; SM Semi-mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
T14										Estimated Measurements	
Common Oak *Quercus robur*	19.7	1	1160	N 8 E 11 S 10 W 8	6 4 7.5 6	OM	A: 608.8 R: 13.92	Fair	C: Poor S: Fair B: Fair	Fell :: Fell to ground level *Tree has significant irremedial decay to an extent where the tree poses a risk to road users and adjacent properties. Fell and replant.* Historically heavily reduced oak tree. Large section of deadwood throughout canopy. Decay to upper side of northern limb at 3m. Bark necrosis at basal area. Decay cavity on eastern side of main stem, extending from 330mm AGL to 1150mm approximately 600mm wide. Recommend picus.	U n/a
T17 N/A										Estimated Measurements	
Sycamore *Acer pseudoplatanus*	17	1	295	N 2 E 3 S 2.15 W 3.5	4 4 4 4	Y	A: 39.4 R: 3.54	Fair	C: Poor S: Fair B: Fair	Fell :: Fell to ground level Sycamore is tall and slender. The tree will require removal due to exposure from loss of neighbouring trees.	C 10 to 20 yrs
T18 N/A										Estimated Measurements	
Common Ash *Fraxinus excelsior*	22	1	340	N 10 E 4 S 5 W 4	10 10 10 10	SM	A: 52.3 R: 4.08	Poor	C: Poor S: Fair B: Fair	Fell :: Fell to ground level Tree has poor height/slenderness coefficient due to suppression from neighbouring Oak tree. Tree has signs of ash die back and has very low vitality.	C 10 to 20 yrs
T24 N/A										Estimated Measurements	
Sycamore *Acer pseudoplatanus*	22	1	410	N 8.2 E 3 S 2 W 9	5 5 5 5	SM	A: 76.1 R: 4.92	Fair	C: Fair S: Fair B: Fair	A tall and Slender sycamore tree growing on the boundary with the neighbouring property.	C 10 to 20 yrs
T25 N/A										Estimated Measurements	
Sycamore *Acer pseudoplatanus*	21	1	310	N 2 E 3 S 3 W 1	8 9 8 8	SM	A: 43.5 R: 3.72	Fair	C: Fair S: Fair B: Fair	Tree located in adjacent property front garden	C 10 to 20 yrs

Age Classifications: N Newly planted; EM Early Mature; Y Young; M Mature; SM Semi-mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
T29 N/A											
Common Holly *Ilex aquifolium*	13	2	225 (Eq)	N 2 E 2.29 S 1 W 1.8	2	SM	A: 22.8 R: 2.69	Poor	C: Poor S: Poor B: Poor	Fell :: Fell to ground level Tree has sparse foliage appearance and low vitality.	U n/a
T31											
Common Oak *Quercus robur*	23	1	880	N 6 E 6.8 S 7.25 W 4	6.5 6.5 6 2	OM	A: 350.4 R: 10.56	Poor	C: Poor S: Fair B: Poor	Fell :: Fell to ground level *tree has significant internal decay and is located within striking distance of numerous above ground targets. Fell and replant.* Tree has low foliar density and numerous historic pruning wounds. Numerous ganoderma fungal fruiting bodies at various points around stem base. Tree requires picus tomograph	U n/a
T33											
Common Oak *Quercus robur*	23	1	910	N 4.5 E 5.2 S 5.7 W 4.5	2.5 2.5 2.5 2.5	OM	A: 374.7 R: 10.92	Poor	C: Fair S: Poor B: Poor	Fell :: Fell to ground level *Tree has significant internal decay and poses a risk to numerous above ground targets. Fell and replant.* Evidence of poor pruning/storm damage. Open heartwood decay cavity on SE side of mainstem. Bark Necrosis and decay of buttress roots. Picus recommended.	U n/a
T43 N/A										Estimated Measurements	
Common Oak *Quercus robur*	18.4	1	920	N 5.5 E 6.6 S 6 W 5	11 12 10 7	M	A: 383 R: 11.04	Poor	C: Poor S: Poor B: Fair	Protection :: Erect protection barriers *Tree has very low vitality but requires protection due to location in neighbouring property. Ground protection required.* Tree located in neighboring property. No access. Tree has very low vitality and poor form.	U n/a
T44 N/A											
Common Hawthorn *Crataegus monogyna*	5	1	260	N 2.65 E 3.89 S 4 W 2	1.5 3 2 2	M	A: 30.6 R: 3.12	Fair	C: Fair S: Fair B: Fair	A boundary tree.	C.2 10 to 20 yrs

Age Classifications:					**Condition:**			**Stems:**	
	N	Newly planted	EM	Early Mature		C	Crown	Ø	Diameter
	Y	Young	M	Mature		S	Stem	(Eq)	Equivalent stem diameter using BS5837:2012 definition
	SM	Semi-mature	OM	Over Mature		B	Basal area	**ERC:**	Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m2) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
T45 N/A											
Sycamore *Acer pseudoplatanus*	15.1	1	530	N 6 E 7.4 S 6.8 W 3	2.5	M	A: 127.1 R: 6.36	Poor	C: Good S: Poor B: Poor	Fell :: Fell to ground level Compression fork in main stem at point at which stem bifurcates future failure of fracture and entire tree foreseeable.	U n/a
T46 N/A										Estimated Measurements	
John Downie *Malus 'John Downie'*	3	1	95	N 2 E 2 S 2 W 2		SM	A: 4.1 R: 1.14	Good	C: Good S: Fair B: Good	Protection :: Erect protection barriers *Tree worthy of retention.* A small apple tree.	C 10 to 20 yrs

Age Classifications:	N	Newly planted	EM	Early Mature	**Condition:**	C	Crown	**Stems:**	Ø	Diameter
	Y	Young	M	Mature		S	Stem		(Eq)	Equivalent stem diameter using BS5837:2012 definition
	SM	Semi-mature	OM	Over Mature		B	Basal area	**ERC:**		Estimated Remaining Contributio

Appendix B

Tree Retention\Removal Plan (Q0138\34HavntRd\TRRP_V1\2021)
Tree Protection Plan (Q0138\34HavntRd\TPP_V1\2021)

Fallen&Found Arboriculture Ltd
2 Selsdon Avenue, Romsey,
Hampshire SO51 7PL
Tel: 07564346560
email: Oliver@fallenandfound.co.uk

34 Havant Rd
Tree Retention Removal Plan

SCALE :	DATE :
1 : 500 @ A3	20/07/2021

MAP FILENAME :
Q0138\34HavntRd\TRRP_V1\2021

N

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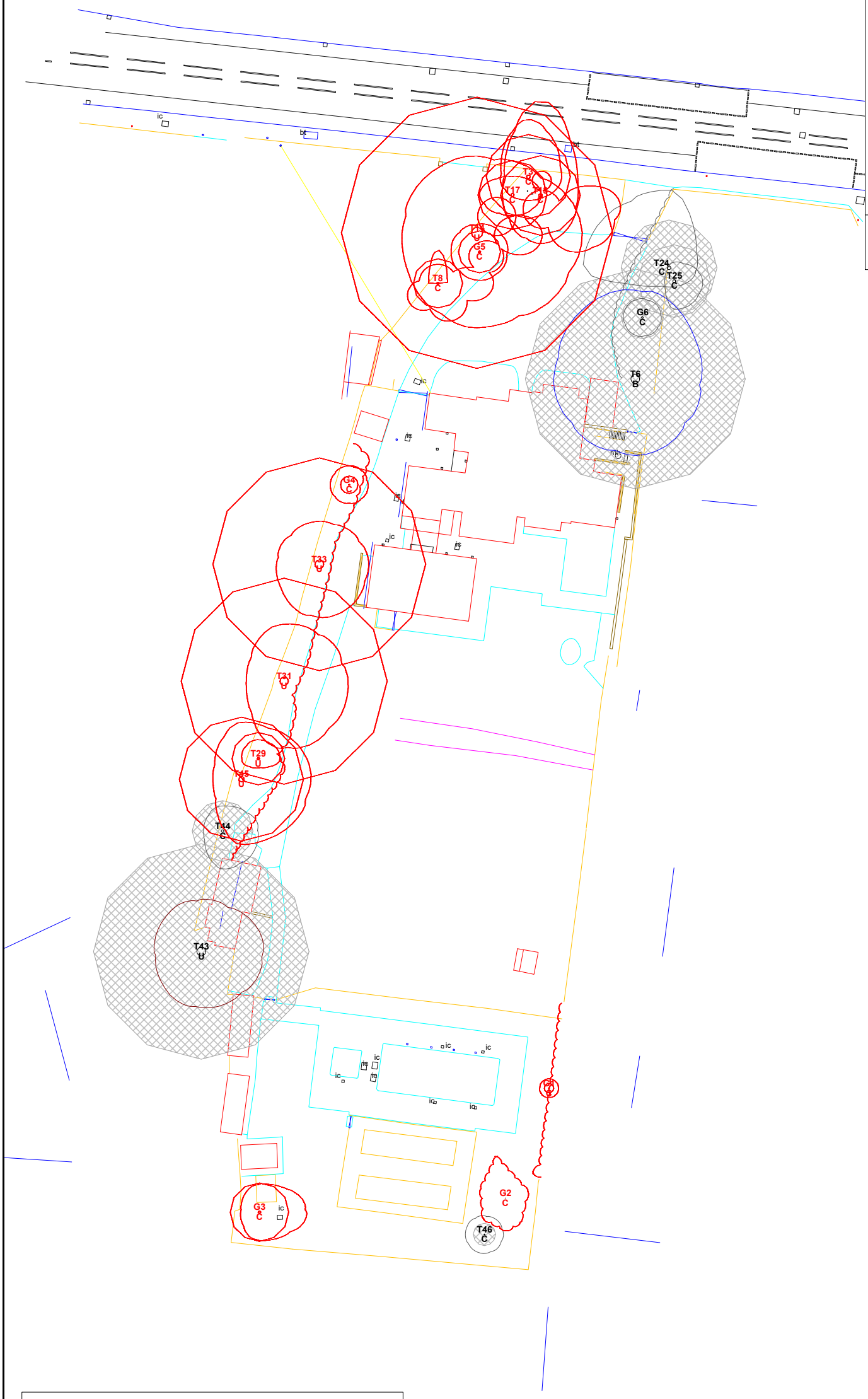
Crown Spread
Root Protection Area
Category 'A'
Category 'B'
Category 'C'
Category 'U'

0 40m



Trees to be Removed

Fallen&Found Arboriculture Ltd
2 Selsdon Avenue, Romsey,
Hampshire SO51 7PL
Tel: 07564346560
email: Oliver@fallenandfound.co.uk

34 Havant Rd
Tree Protection Plan

SCALE :	DATE :
1 : 500 @ A3	20/07/2021

MAP FILENAME :
Q0138\34HavntRd\TPP_V1\2021

N

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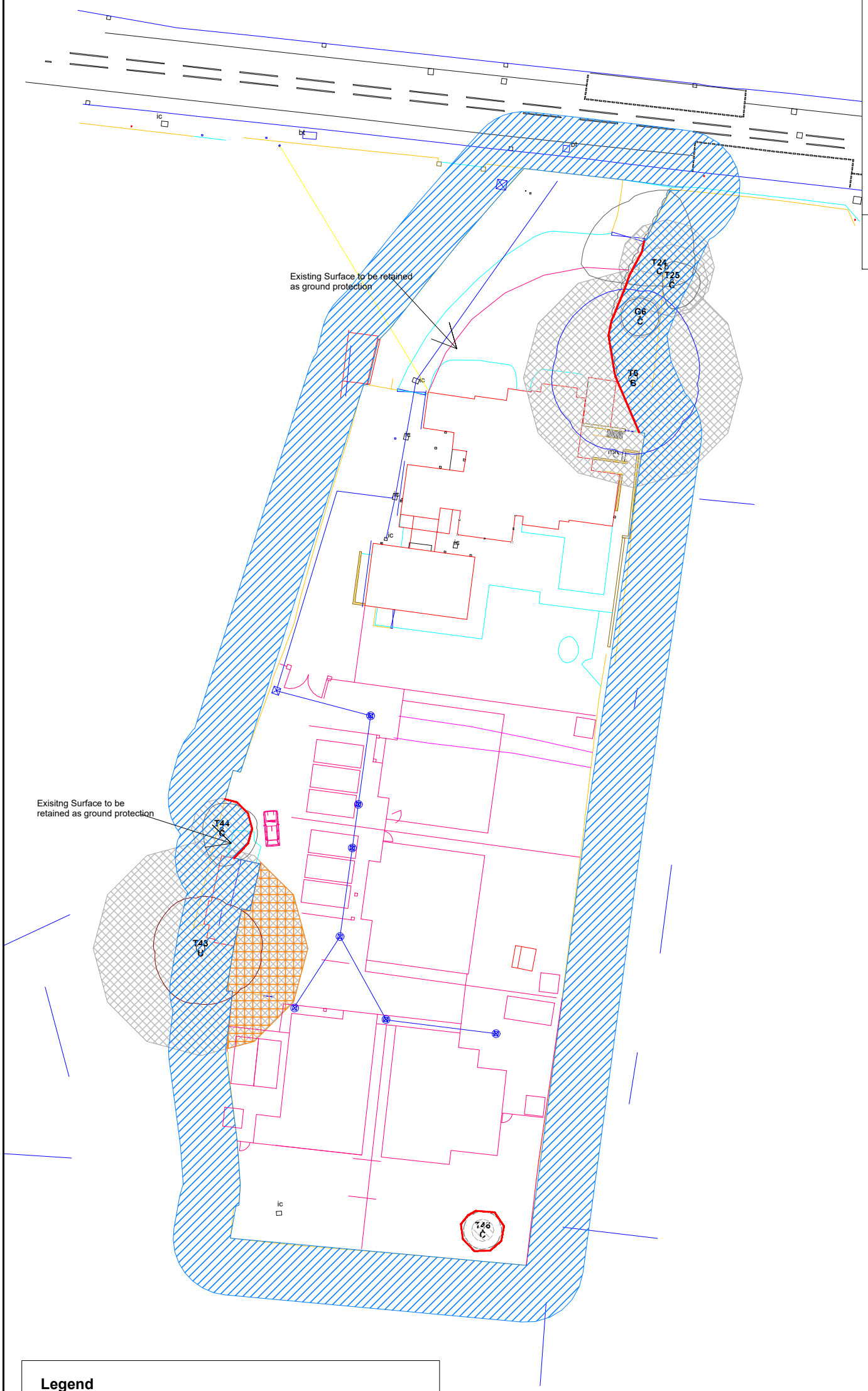
Crown Spread
Root Protection Area
Category 'A'
Category 'B'
Category 'C'
Category 'U'

0 40m



Legend

- CellWeb
- Construction Exclusion Zone
- Proposed
- Tree Protection Fence

Appendix C

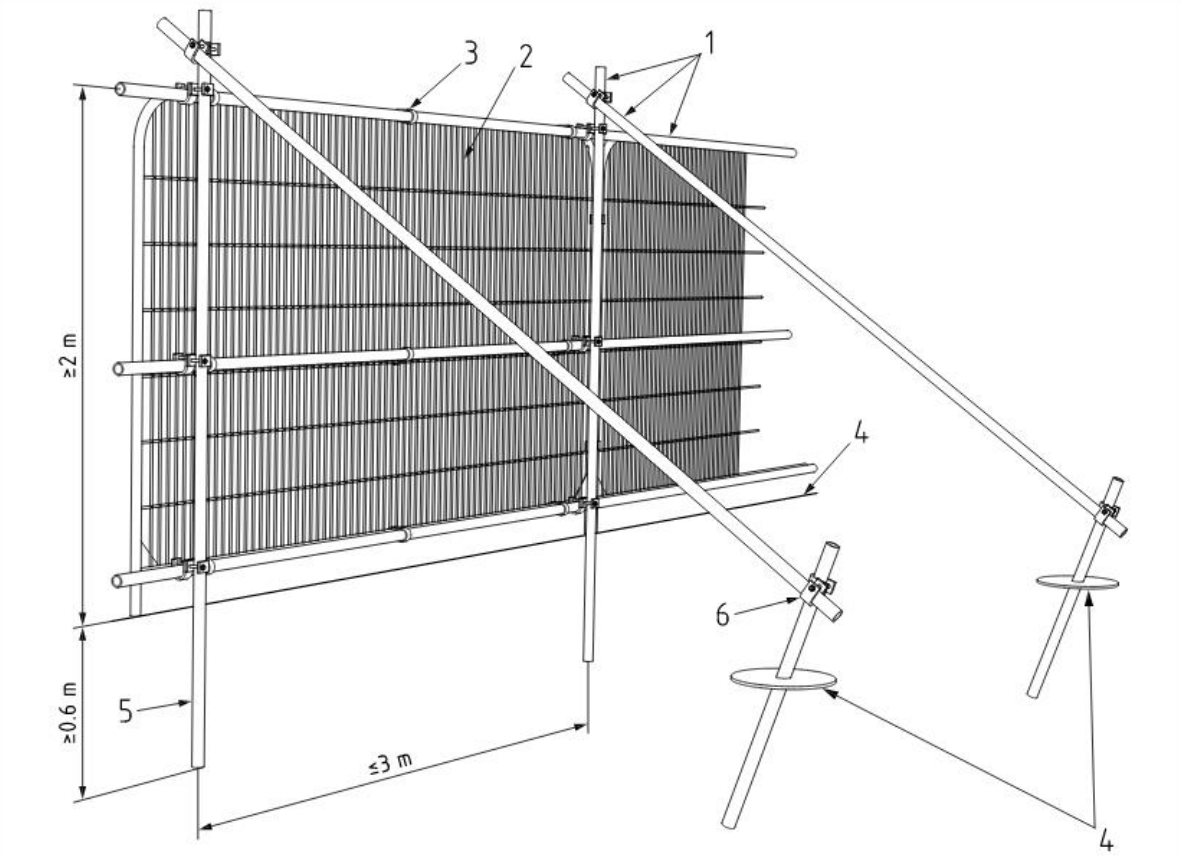
Figure 1

Default Tree Protective Fencing

Protective fencing should be erected before any construction commences on site. It should also be in position to protect important trees prior to demolition.

Protective fencing should stay in position until all construction activity has finished.

'Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around retained trees. On all sites, special attention should be paid to ensuring that barriers remain rigid and complete.' BS 5837 para 9.2.1.



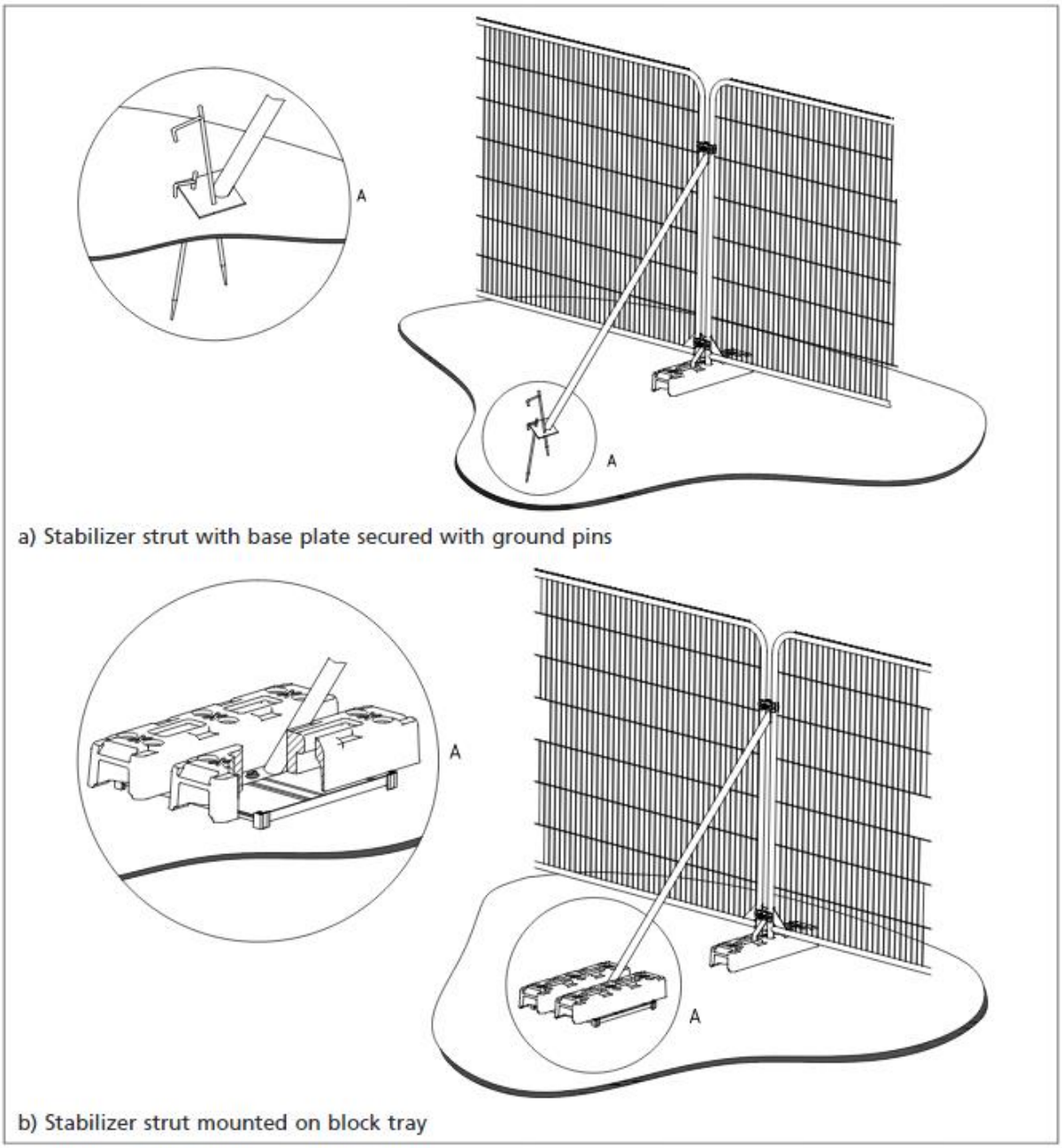
Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Figure 2

Alternative Tree Protective Fencing

This form of tree protective barrier should be used only when significant underground constraints warrant its use. However, it should be treated in the same manner as the default tree protective barrier displayed in **Figure 1.**



20/07/2021

Figure 3

Example of all-weather warning signs to be affixed to fencing at 10m intervals.

20/07/2021

Figure 4

Arboricultural Consultant Site Visit

Company:	Site:
Consultant:	Date:
Address:	Site Address:
Representative:	Site Representative
Phone:	Phone

Purpose:
Site meetings:
Observations:
Recommendations

20/07/2021

Next site visit:

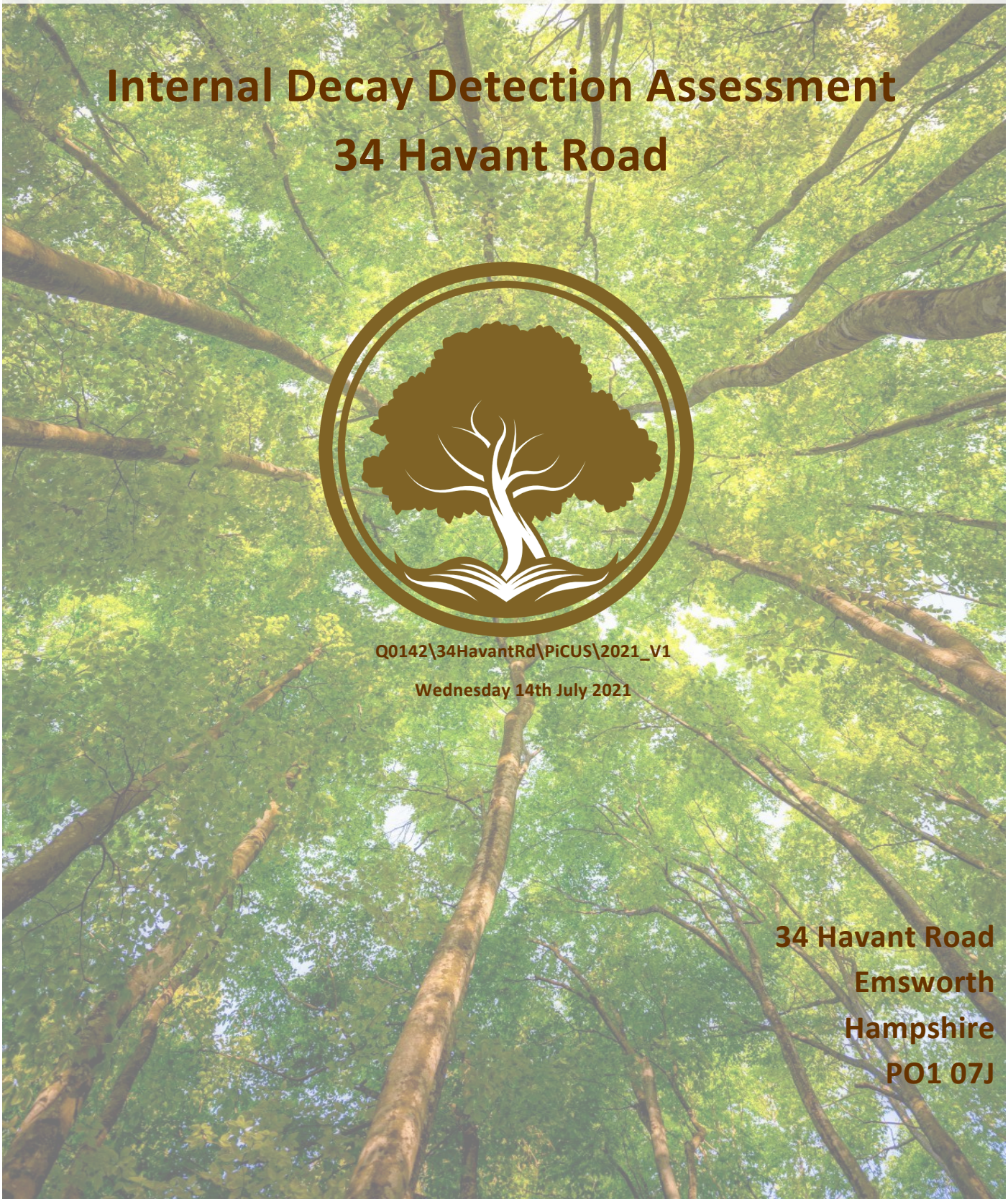
Appendix D

07564346560
Oliver@fallenandfound.co.uk
www.fallenandfound.co.uk

Selsdon Avenue
Romsey
Hampshire
SO51 7PL

Fallen&Found Arboriculture Ltd

Company No: 11872391 / VAT Registration 317617696



Internal Decay Detection Assessment
34 Havant Road

Q0142\34HavantRd\PiCUS\2021_V1

Wednesday 14th July 2021

34 Havant Road
Emsworth
Hampshire
PO1 07J

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14/07/2021

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The statements made in this report do not take account of extreme weather events, rooting environment alterations, accidental damage, vandalism or works not carried out to industry recognised standards or best practice. Fallen&Found Arboriculture Ltd does not accept any liability associated with these instances. The validity of this report ceases after one year from the instance of the initial site inspection, or if the site conditions change as a result of unspecified works affecting the subject tree/s.

Quality Control			
Author	**Oliver Lower**	**Checked by**	**Stephanie Smith** (14/07/2021)

1. Introduction

1.1. Instruction

1.1.1. I[1] have been instructed by you Mr Lee Mandiwall, to carry out an internal decay detection inspection and report on three Oak trees growing within the property boundaries of **34 Havant Road, Emsworth, Hampshire PO1 07J**.

1.2. Scope

1.2.1. The inspections will be in the form of internal decay detection utilising a PiCUS 3 Sonic Tomograph, this device will be used to assess the wood condition of each tree and detect cavities and general decay.

1.2.2. The purpose of these inspections is to assess the trees regarding their biomechanical condition and to identify any immediate and non-immediate risks posed by the trees to public safety. The risk level will be assessed depending on the hazard, probability of failure, the target area and public occupancy. Consideration will also be given to the probability of direct damage to above-ground structures at the site.

1.2.2. All data and findings will be assessed to form relevant conclusions on which subsequent recommendations will be made. The assessment and conclusions contained in the report are in the interest of health and safety and the continued management of the trees. All observations and data with accompanying conclusions and prescribed management recommendations will be fully elaborated upon within this report.

1.3. Document disclosure

1.3.1. I have not been provided with supplementary documentation regarding the subject trees or site, neither has there been any other third-party input or detailed schematic used for the purposes of this report. The inspection is conducted as part of the ongoing tree safety management of the property.

1.4. Qualifications and experience

1.4.1. The conclusions and recommendations contained in this report are formed from my own site observations and the provided information. The opinions expressed within it are based on my arboricultural experience. My qualifications and experience in arboriculture are included in **Section 5** at the end of this document.

1.5. Background information

1.5.1. Several fungal fruiting bodies have been observed by yourself emanating from the base of one of the Common Oak[2] trees growing within the rear garden of the property. I was contacted by you in order to inspect and assess the safety of the subject tree. I attended the site and inspected the subject tree and a further two trees during the visit. I recommended the use of further diagnostic equipment in order to ascertain the biomechanical condition of each tree due to the presence of numerous biomechanical features within each tree which are associated with partial and full failure of both tree and component parts of tree structure.

---

[1] Principal Arboricultural Consultant, Oliver Lower Dip Arb L4 Dip Arb L6

[2] *Quercus robur*

1.7. Legal protection of trees

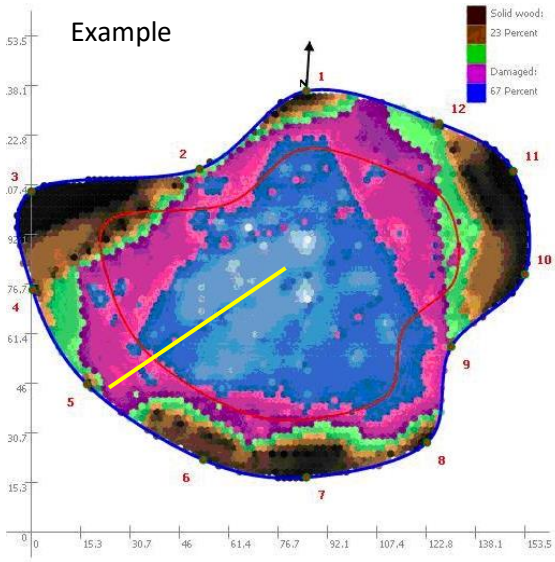
1.7.1. This report is not associated with the legal protection of the trees included in this survey. The presence of any statutory protection including Tree Preservation Orders and Conservation Areas should be ascertained by the owner/contractor prior to the commencement of any potential tree works at the site.

1.8. Survey methodology

1.8.1. The inspection will be conducted using the PiCUS Tomograph 3. The device measures the velocity of sound waves in wood, to detect decay and cavities in standing trees non-invasively. The acoustic velocity depends on the modulus of elasticity and the density of the wood itself. Most damage and disease cause fractures, cavities, or decay and reduces the wood's elasticity and density. By using both acoustic travel-time information and geometry data of the measuring level the software calculates tomograms that show the apparent sonic velocities. The speed of sound in wood correlates with wood quality and is, therefore, a measure for the breaking safety of the trunk. The PiCUS sonic tomogram shows the residual wall thickness of the test subject. The acoustic waves are created manually with a small hammer and sonic sensors (receivers) record the signals. Little pins are used for coupling the sensors to the wood. The speed of sound transmission is represented visually for assessment.

1.8.2. A graph such the one below is produced by the computer software ready for interpretation. Black and brown areas indicate sound wood which has not undergone any significant alteration. Green areas indicate wood, which is altering due to the fungal decay process, purple areas indicate wood which is in an advanced state of decay. Cavities and wood which is so decayed as to have little density are represented by blue and light blue colours, the lightest representing potential cavities. Yellow lines are indicative of internal cracks with their severity being displayed by varying thickness of line.

1.8.3. The recorded data and any pertinent observations will be categorised in order of importance. This will be calculated by assessing the potential risk posed by any observed hazards. The location of the tree/s, the potential hazard posed, and the density of public use in that area will be considered when categorising any recommendations. In this report, a hazard is any part of a tree which displays outward signs that there is a significant possibility that it may fail. The risk is then assessed by combining the information about its significance and the likelihood of its failure.



1.8.4. Risk level will be assessed depending on the hazard, probability of failure, the target area, and public occupancy. Recommendations will be made to reduce risks to be as low as is reasonably practicable, whilst pertaining to the retention of trees where possible. Trees with biomechanical features, dead wood, fallen trees and decaying structures will be retained where practicable or where it is safe to do so. The purpose of the inspection is to identify hazards which pose an unacceptable risk to the residents and the public frequenting the site.

Instruments Used				
Height	**Distance**	**DBH (diameter at 1.5m agl)**	**Assessment tools**	**Decay detection**
Haglöfs ECII Electronic Clinometer	**Laser Measure**	**10m Diameter Tape**	**Thorex Sounding Mallet** **2m metal probe pin**	**PiCUS 3 Tomograph**

2. Site Visit & description

2.1. Site visit

2.1.1. The site was visited on the morning of the 26th of June 2021. The weather during the visit was overcast with persistant rain and light wind providing less than ideal conditions. Despite this, the weather did not pose a significant constraint on the inspection process and most parts of the trees above-ground structures were visible during the inspection. Dense understory did at times cause difficulty in accessing the trees. However, alternative access points were selected in order to gain access to the tree stem bases. Overall, understorey did not pose a serious constraint on the inspection process and sufficient access was obtained to all of the required points of each trees stem base.

Conditions	Result
Temperature	15°C
Cloud Cover	100%
Precipitation	70%
Humidity	80%
Wind Speed (Beaufort)	F2-F3

Red line is indicative of site.

2.2. Site description

2.2.1. The site is located to the south of Havant Road between Beech Road and Clovelly Road in the town of Emsworth. The site lies immediately adjacent to Emsworth Sports & Social Club. Access to the property Is gained via a brick paver driveway leading southward toward the main house. The main house consists of a detached flint and stone built three storey property which has been extended multiple times toward the east and south. A brick paver driveway leads around the western side of the property toward a large rear garden. A swimming Pool and several other garden structures are present within the rear garden. The rear garden is primarily laid to lawn whilst the front garden area is extensively driveway and parking for the property. There are numerous trees of varying age and size growing throughout the site and are accompanied by several mature hedges and shrub/herbaceous beds. The topography of the site is predominantly level and ground conditions during the survey remained predominantly firm underfoot although these conditions worsened significantly where areas are currently under construction. A plan detailing the locations of the trees included in the survey is provided in **Appendix A** of this document.

3. Observations & Inspections

3.1. Tree 1

Species: Common Oak (*Quercus robur*)
Number of stems: 1
Avg Height: 23.0m
Stem Diameter @ 1.5m agl: 880mm
Crown radius average spread: 6.0m
Height of crown clearance: 6.0m
Age class: Over-Mature
Vitality: Fair
Above ground targets: Vehicles; pedestrians; adjacent property; garage; fence; driveway.

Observations

The subject tree is a large over-mature tree which has been heavily reduced historically using poor pruning techniques. The tree's canopy is greatly diminished in breadth as a result. The tree's stem base is obscured slightly by various herbaceous plants. Three small *Ganoderma australe* sporophores[3] are emanating from the base of the tree's stem close to ground level. These can be found at the cardinal points of the tree's stem base in relation to the site's orientation. Mallet sounding of the tree's stem, stem base and root buttresses produce a dull resonance indicative of internal decay or the presence of cavities. The tree is located within striking distance of numerous above ground-built structures and the adjacent property.

Inspection

The sensors of the PiCUS 3 Sonic Tomograph were applied to the stem base of the tree at a height of 100mm above ground level after being positioned using the Bluetooth callipers. Each of the sensors was then struck in accordance with the sequential process defined by the machine itself. During this process, each measurement was taken, and a tomograph was produced. The result of the tomograph can be viewed in the result section of this report.

[3] Fruiting body (the spore-bearing structure of a fungus).

3.2. Tree 2

Species: Common Oak (*Quercus robur*)
Number of stems: 1
Avg Height: 23.0m
Stem Diameter @ 1.5m agl5: 910mm
Crown radius average spread: 5.0m
Height of crown clearance: 2.5m
Age class: Over-Mature
Vitality: Fair
Above ground targets: Vehicles; pedestrians; adjacent property; garage; fence; driveway; office; house; neighbouring house; shed.

Observations

The subject tree is a large over-mature tree which has been heavily reduced historically using extremely poor pruning techniques. There are several fractured limbs within the tree's canopy which are likely evidence of storm damage possibly relating to the great storm of 1987. A large cavity measuring approximately 400mm high and 500mm wide is observable below a fractured limb on the southern side of the tree's canopy at an approximate height of 10m above ground level. The tree's stem base is obscured slightly by various herbaceous plants although a break in the foliage allows the tree's stem to be observed easily from the property driveway. A large historic stem wound is most noticeable on the eastern side of the tree's stem where it extends from ground level to a height of approximately 1.5m above ground level. Although the wound is slowly occluding, there remains a 400mm wide area of exposed heartwood which extends the full height of the wound. I observed hundreds of black Ants all over the tree's lower stem. I believe these to be Carpenter Ants[4] which have colonised the tree's stem. Mallet sounding of the tree's stem around its base, open wound and exposed heartwood produced a dull resonance indicative of internal decay or the presence of cavities. The tree is located within striking distance of numerous above ground-built structures and the adjacent property.

Inspection

The sensors of the PiCUS 3 Sonic Tomograph were applied to the stem base of the tree at a height of 200mm above ground level after being positioned using the Bluetooth callipers. Each of the sensors was then struck in accordance with the sequential process defined by the machine itself. During this process, each measurement was taken, and a tomograph was produced. The result of the tomograph can be viewed in the result section of this report.

[4] *Camponotus spp*

3.3. Tree 3

Species: Common Oak (*Quercus robur*)
Number of stems: 1
Avg Height: 19.7m
Stem Diameter @ 1.5m agl5: 1160mm
Crown radius average spread: 9.0m
Height of crown clearance: 5.0m
Age class: Over-Mature
Vitality: Poor
Above ground targets: Vehicles; pedestrians; pedestrian footpath; busy road; adjacent property; driveway; street furniture.

Observations

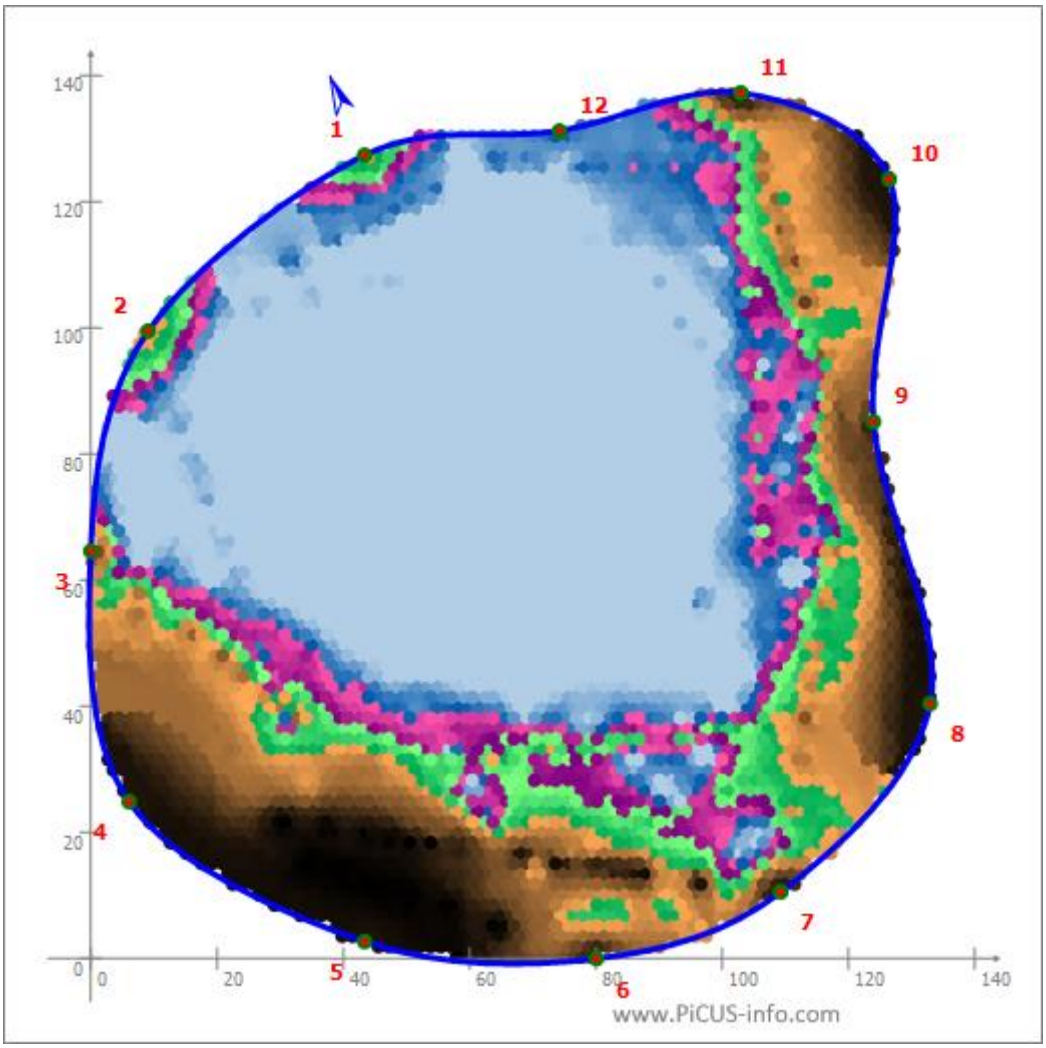
The subject tree is a large and prominent over-mature tree which is clearly visible from Havant Road. The trees canopy extends close to the road and over the adjacent pedestrian footpath. The subject tree has been heavily reduced historically using extremely poor pruning techniques. This has resulted in large diameter un-occluded pruning wounds throughout the tree's canopy and branch framework. Many of these pruning wounds have now decayed leaving unusually shaped regrowth and cavities both of which are easily observed from ground level. The tree's canopy is sparse with poor growth extension and chlorotic leaves. The tree's stem base is obscured from the road by thick vegetation. Mallet sounding of the tree's stem, stem base and root buttresses produced a very loud deep resonance indicative of significant internal decay or the presence of large cavities. This loud hollow sounding resonance was most pronounced around the entire south and southwest extent of the tree's stem close to what appears to be a subterranean septic tank. The tree is located within striking distance of numerous above ground-built structures, a remarkably busy road, footpath and both the main house and adjacent property.

Inspection

The sensors of the PiCUS 3 Sonic Tomograph were applied to the stem base of the tree at a height of 200mm above ground level after being positioned using the Bluetooth callipers. Each of the sensors was then struck in accordance with the sequential process defined by the machine itself. During this process, each measurement was taken, and a tomograph was produced. The result of the tomograph can be viewed in the result section of this report.

4. Results & Analysis

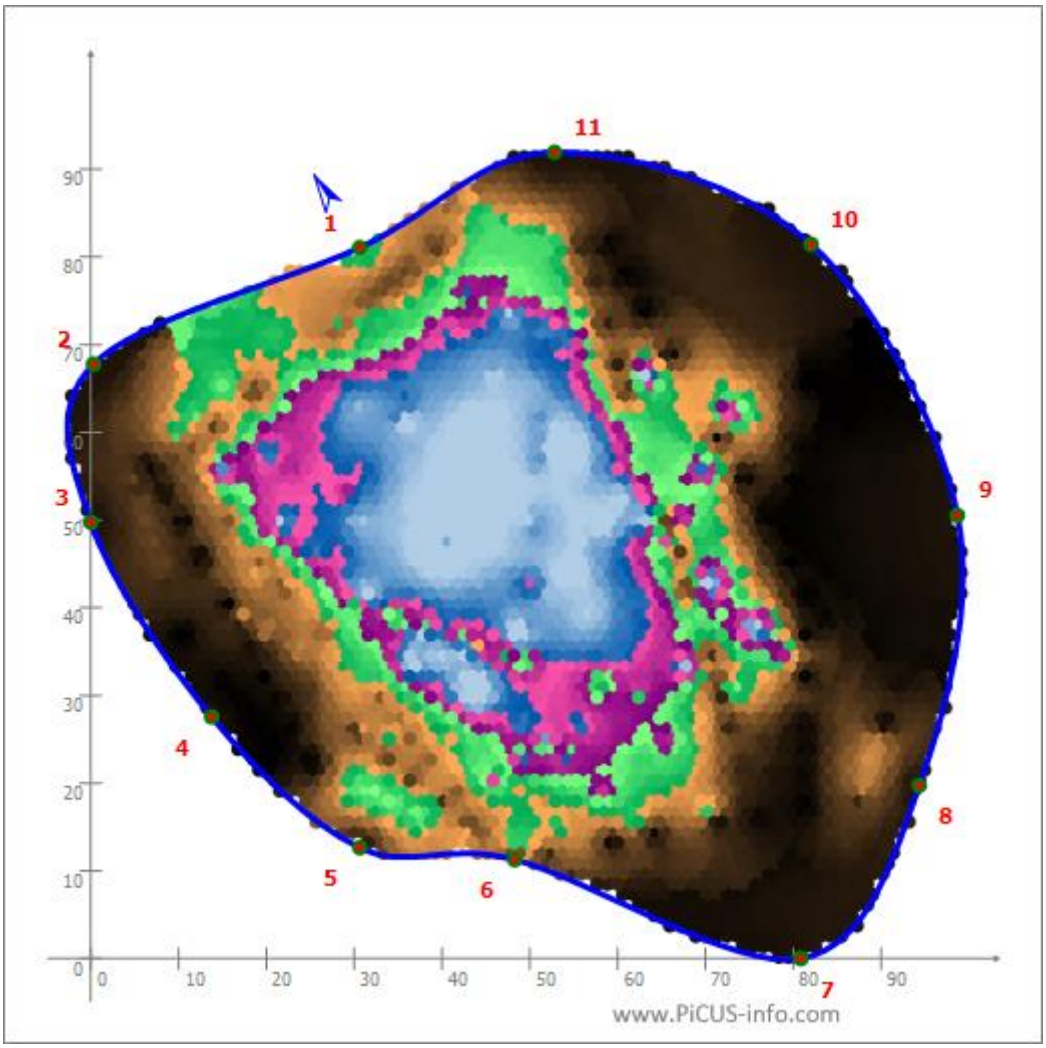
4.1. Tree 1



Analysis

The Results of the Sonic Tomograph conducted upon the tree identified the presence of a large decay cavity orientated toward the northernmost portion of the trees lower stem. Little unaltered/healthy wood is shown throughout the tomogram graph. Where it is present it is located in small amounts close to the tree's root buttress flare. Light brown areas preceded by green, purple and blue indicate insipient decay which has not been effectively compartmentalised by the tree. Consequently, decay is continuing to spread throughout the tree's stem at the height at which it has been assessed. The subject tree has extremely low amounts of residual wood which would be considered as "healthy".

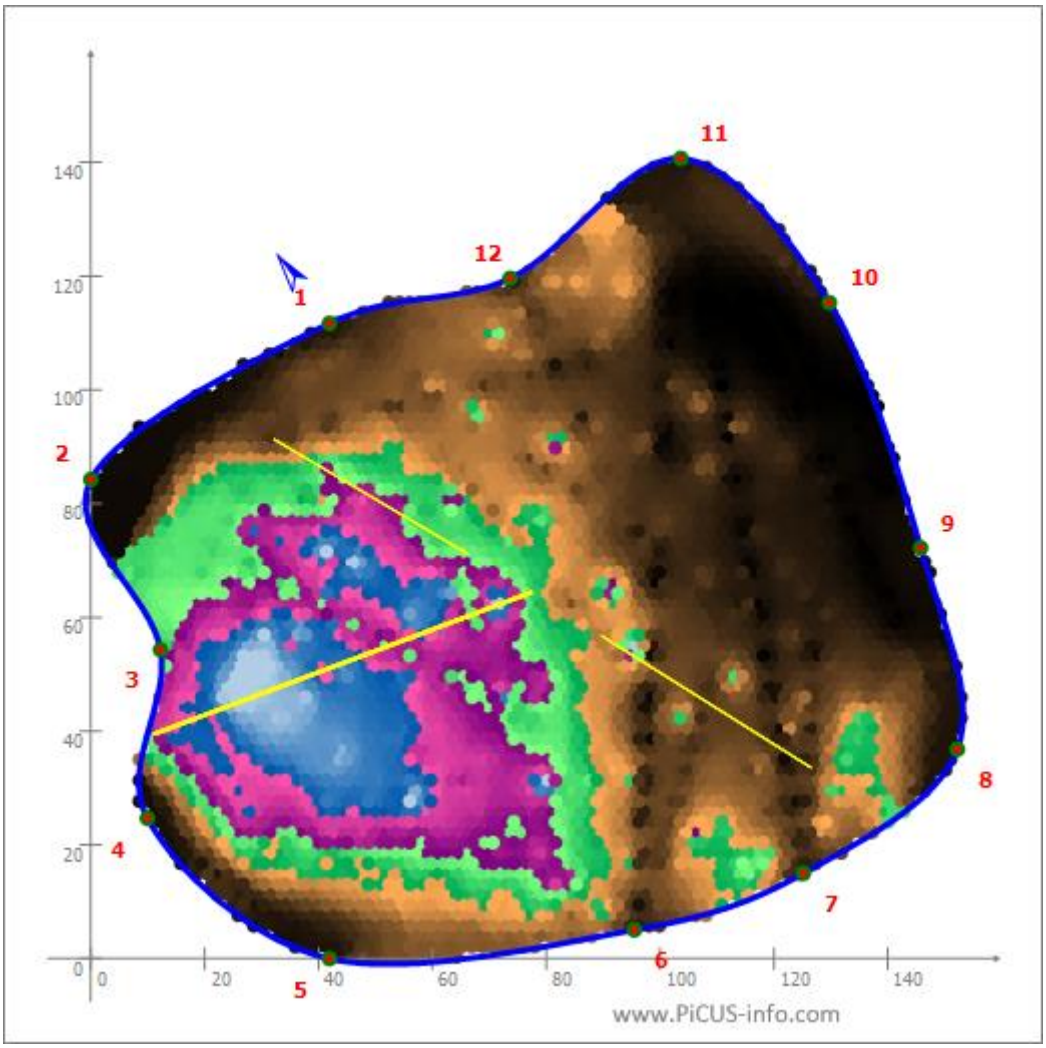
4.2. Tree 2



Analysis

The Results of the Sonic Tomograph conducted upon the tree identified the presence of a large decay cavity located centrally within the tree's lower stem. Large areas of purple and green indicate advanced decay which is spreading into surrounding wood which is undergoing alteration (early decay process). The graph shows that the decay is only covered by a thin layer of Bark at sensor points 1 and 6. Little unaltered/healthy wood is shown throughout the tomogram graph. Where it is present it is located primarily on the eastern side of the tree's stem. Light brown areas preceded by green, purple and blue indicate insipient decay which has not been effectively compartmentalised by the tree. Consequently, decay is continuing to spread throughout the tree's stem at the height at which it has been assessed. The subject tree has very low amounts of residual wood which would be considered as "healthy".

4.3. Tree 3



Analysis

The Results of the Sonic Tomograph conducted upon the tree identified the presence of a large decay cavity (light blue/white) located toward the western portion of the tree's lower stem. Large areas of purple and green indicate advanced decay which is spreading into surrounding wood which is undergoing alteration[5] (light brown). Light brown areas preceded by green, purple and blue indicate insipient decay which has not been effectively compartmentalised by the tree. The presence of several linear yellow lines indicates the presence of radial and longitudinal fractures within the tree's stem.

[5] early decay process

5. Conclusion

5.1. Tree 1

The results of the PiCUS Tomogram investigation identify the tree's stem as being subject to significant decay. This decay is so advanced that there is little to no residual wood left for several portions of the trees stem. A large central decay cavity is identified in light blue and white on the graph. The extent at which this decay has progressed too, and the small size of the fungal fruiting bodies indicate that decay has been present and underway for a long period of time. The likelihood of the future failure of the tree is extremely high. Due to the location of the tree and extent of decay I perceive this tree to present a broadly unacceptable risk to persons and property both within and outside of the site.

5.2. Tree 2

The results of the PiCUS Tomogram investigation identify the tree's stem as being subject to significant decay. The decay which has been identified is centrally located and shows signs of progression into the surrounding wood. The large stem wound with exposed heartwood which is in a decayed state and the presence of Carpenter Ants all indicate that the decay is likely to extend well above the point at which the assessment was made. Further decay cavities observed on the trees main stem at height also suggest the presence of a large longitudinal decay column which may have coalesced from several points over a number of years. The likelihood of the future failure of the tree is extremely high. Due to the location of the tree, the proximity of high value targets and the extent of decay, I perceive this tree to present a broadly unacceptable risk to persons and property both within and outside of the site. Considering all of these factors, I perceive remedial tree pruning operations to be an inappropriate recommendation in light of the trees overall biomechanical and biological condition.

5.3. Tree 3

The subject tree is by far the largest tree on the property. The tree is also located in the highest risk location at the site. The presence of a remarkably busy road which often has stationary queuing traffic, a pedestrian footpath as well as its proximity to a large number of high value targets qualifies this tree as being high risk. This risk level is further exacerbated by the trees overall low vitality, sparse foliar density, poor biological and biomechanical condition, as well as the presence of significant internal decay.

The results of the PiCUS Tomogram investigation identify the tree's stem as being subject to significant decay. The decay which has been identified is located predominantly to the western extent of the tree's stem although signs of further decay can be observed to the south. Wood alteration can also be observed throughout the graph where decay is progressing. The presence of cracks within the trees stem are likely the cause of the loud drum like resonance that can be achieved by striking the tree using a sounding mallet. The likelihood of the future failure of the tree is extremely high. Due to the location of the tree, the proximity to high value targets and the extent of decay, I perceive this tree to present a broadly unacceptable risk to persons and property both within and outside of the site.

I have carefully considered the results of all of the assessments in this report. I have also considered the foreseeable outcome of the biomechanical and biological condition of each tree in light of the constraints provided by the site. Although I pride myself in managing trees with every effort made to retain them where practicable, it is my professional opinion in this case that they all pose a broadly unacceptable risk property, owners, and the general public.

6. Recommendations

6.1. All of the trees discussed in this report should be removed/felled as soon as is reasonably practicable.

6.2. The TPO status or the presence of any Conservation Areas, SSSI/NNR/SAC or Schedule Monument designations applicable to the site and trees discussed in this report should be confirmed as a priority. In the event of legal protection being afforded to the trees, all prescribed tree works will require the written consent of the Local Planning Authority prior to their commencement.

6.3. All tree works should be conducted by a fully qualified and insured arboricultural contractor conforming to **BS 3998: 2010 Tree Work – Recommendations**. The contractor should prepare and fill out all necessary Risk Assessments appropriate for the task/tasks and adhere to current health and safety standards. A list of Arboricultural Association approved contractors can be found on their website www.trees.org.uk.

6.4. All trees requiring works should be visually inspected for Bat and Wildlife potential from ground level by operatives prior to work commencement. Any potential habitats such as cracks, crevices and loose bark should be inspected using an endoscope before work is started. In the instance that Bats[6] or other wildlife such as nesting birds are discovered, works should be either halted or only carried out where there is a significant risk to the public. Where works are unavoidable these should be conducted minimally i.e., the reduction of deadwood rather than its removal, the part felling of unsafe trees (where appropriate) and the lowering/rigging of faulted component tree portions.

6.5. Any vegetation clearance and other tree works associated with the management of the site must take into consideration the Bird Breeding season[7].

6.6. Any replacement trees should be planted in accordance with **BS 8545:2014 Trees: from nursery to independence in the landscape – Recommendations** by an experienced person. Newly planted trees should be subject to a two-year aftercare program to ensure successful establishment.

6.7. **Further details regarding ecological matters, the duty of care and important tree information are included in Appendix B. This information is left out of the main body of the report for ease of reading. However, it should not be overlooked.**

[6] In the instance that Bats are discovered during the works, please refer to section **7** of this document.
[7] Section 7

Appendix A

Tree Location Plan

14/07/2021

Havant Rd
A259
Havant Rd
38
36
T3
2
32
34
4
32
T2
T1
Clovelly Rd
Clovelly Rd
8
Google

Appendix B

7. Limitations of the report

7.1. As living dynamic structures inhabiting a constantly changing environment trees are exposed to pests, diseases, extremes of weather and rooting environment alterations. This report is based on the condition of the tree/trees at the time of inspection. As a result, the contents of this report are an assessment of the tree/trees at the time of the survey. Reassessment may be required in the event of an extreme weather event, physical site changes or obvious changes in physical condition or appearance. Notwithstanding this report only is regarded as valid for twelve months from the date of its issue **14/07/2021.** The survey and its conclusions are based on the data gleaned by a ground-level inspection. The inspection does not benefit from a detailed third-party technical report. The conclusions and recommendations contained in this report are formed of my own opinions based on arboricultural experience and modern tree assessment techniques.

7.2. There has been no instruction to assess the risk of indirect damage to surrounding above and below ground structures. No consideration has been made on the possible effects of tree removal regarding the possibility of indirect damage through heave or subsidence to buildings or structures.

7.3. Only visible parts of the tree will be inspected. Areas which are obstructed (ivy-clad or covered by dense foliage) may need to be cleared in order that visual assessment can be carried out. In this instance, the recommendations to facilitate such inspection will be made. Defects noted from ground level may require further investigation to ascertain their significance. In this instance, a climbing inspection may be recommended.

7.4. Recommendations and suggestions about non-arboricultural matters may be given. This may include built structures, construction techniques, and soil data. Any opinion expressed as such should be viewed as from the point of view of a layman and confirmation from a qualified professional sought.

7.5. No soil excavation or below ground root inspection was carried out during the site visit. Exposed root damage or existent excavations were inspected and recorded accordingly.

7.7. Cladoptosis (Sudden Branch Drop) is a phenomenon into which much research is being conducted. The sudden shedding of branches can be a serious risk in areas of high public density. This natural process is difficult to predict as it is often healthy vigorous branches which are shed. No outward appearance has been associated with impending branch failure. Sudden branch drop tends to occur after or during long periods of hot calm weather. Trees will be inspected with this phenomenon in mind although given its unpredictability the author can accept no responsibility for its occurrence.

8. Wildlife considerations

8.1. Any works on or around any of the hedges or trees contained within or located outside of the site should bear in mind "**The Wildlife & Countryside Act 1981 & Habitats and Species Regulations 2017**".

8.2. All wild Birds are protected by the Wildlife and Countryside Act - 1981, Conservation - Natural Habitats -Regulations 1994 and Countryside Rights of Way Act – 2000. This makes it an offence to intentionally kill, injure, take, possess or trade in any wild animal listed and prohibits interference with places used for shelter or protection, or intentionally disturb animals occupying such places.

8.3. The Bird Breeding season extends from the 1st of March to the 31st of July, as a result, all disturbing activities should be avoided during these times.

8.4. All species of Bat and their breeding sites or resting places (roosts) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2010 and Section 9 of the Wildlife and Countryside Act 1981. It is an offence for anyone intentionally to kill, injure or handle a Bat, to possess a Bat (whether live or dead), disturb a roosting Bat, or sell or offer a Bat for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by Bats for shelter, whether they are present or not.

8.5. In the instance that Bats are located during works or Bats are found and the proposed works are necessary to address safety or other issues, The Bat Conservation Group[8] must be consulted regarding a Bat inspection by a suitably qualified and licensed inspector. Non-emergency works will be ceased immediately upon discovery of Bats or their roosts[9].

[8] http://www.Bats.org.uk/

[9] Bat Helpline 0345 1300 228, **9am - 5.30pm Monday to Friday excluding bank holidays for general queries and emergencies. Until 10:30pm including weekends and bank holidays between May and September for emergencies only.**

9. Definitions

9.1. **Defect:** "a defect in the context of the growing environment of a tree is a structural, health or environmental condition that could predispose a tree to failure"[10].

9.2. **Obvious defect:** obvious defects are likely to be so apparent that most people, whether specialist or not, would recognise them[11].

9.3. **Target:** a target is anything of value, which could be harmed or damaged in the event of tree failure.

9.4. **Hazard:** a hazard is a situation or condition with the potential to cause harm. With regards to trees this is may be any part of the tree - its trunk, branches, or crown – that might fail structurally, collapse and fall onto a person or property, causing injury or damage, is a hazard. As all trees have this potential, they and their components are hazards[12].

9.5. **Probability:** the statistical probability of something happening. There are systems such as QTRA (Quantified Tree Risk Assessment) which can be used to calculate the probability of failure. In the instance of these surveys, common sense has been utilised and my own experience of what is likely to fail.

9.6. **Risk:** Risk is the probability of harm and severity of consequence from a particular hazard. Although all trees are potentially hazardous, the risk is relative to the number of people and the presence of valuable property that could be harmed or damaged in the event of root, branch or trunk failure. The extent of risk is, therefore, both relative to the number of people within the falling distance of the tree and the degree of harm that could be caused should the tree structurally fail.

9.7. **Acceptable Risk:** the level and/or material injury or loss from a process that is considered to be tolerable by a society or authorities in view of the social, political and economic cost-benefit analysis.

9.8. **Cost and Benefit:** The benefits of trees are always underestimated; they are essential to our well-being and generally enhance our built and natural environments. It is essential to our management principles to maintain a balance between the benefits of risk reduction and the cost of risk reduction; not only financially but also in terms of the lost amenity and other tree-related benefits[13]

[10] (National Tree Safety Group, 2011)
[11] (National Tree Safety Group, 2011)
[12] (National Tree Safety Group, 2011)
[13] (Wakefield council, 2016)

10. Applicable Law

10.1. Occupiers Liability Act 1957

"The occupiers' Liability act 1957 provides for the liability of an occupier of land when an accident occurs on the land to a person who is a "visitor" to the land (for Scotland see the occupiers' Liability (Scotland) act 1960, for northern ireland see the occupiers' Liability act (northern ireland) 1957). the occupier owes a duty to the visitor to "take such care as in all the circumstances of the case is reasonable to see that the visitor will be reasonably safe in using the premises for the purposes for which he/she is invited or permitted by the occupier to be there"12. the duty of care under the act is effectively the same as that at common law in respect of the torts of negligence or nuisance. a person visiting land by virtue of the national Parks and access to the countryside act 1949, the countryside and rights of Way act 2000 (croWa) or the marine and coastal access act 2009 is not classed as a "visitor" within the meaning of oLa 195713. the person cannot, therefore, bring a claim under the oLa 1957. However, he/she may still potentially bring a claim in negligence or, if appropriate, under oLa 1984"[14].

10.2. Occupiers Liability Act 1984

"The occupiers' Liability act 1984 provides for an occupier's liability to people other than visitors, in particular trespassers, in circumstances where the occupier knows of the potential presence of such people on their land and of the risk posed to them by features of the land such as trees, and the risk is one against which, in all the circumstances, the occupier may reasonably be expected to offer them some protection. For northern ireland see the occupiers' Liability (Northern Ireland) order 1987. the duty under section 1 of the act to a person on "access land" in the exercise of a right to roam conferred by section 2(1) of croWa 2000 will be determined having regard to the fact that the existence of the right ought not to place an undue burden upon the occupier, and having regard to the importance of maintaining the character of the countryside. the duty under oLa 1984 is also limited in that no duty will arise in respect of risks resulting from any natural feature of the landscape (which will include a tree), nor from any river, stream, ditch or pond, providing that the occupier does not intentionally or recklessly create the risk"[15].

10.3. Health and Safety at Work Act 1974

The Have Green Hill Farm Holiday Village is a place of work for staff and therefore the act is enforceable should an accident occur. The Health and Safety at Work Act 1974 places a duty on employers to ensure, so far as is reasonably practicable, that in the course of conducting their undertaking, employees and members of the public are not put at risk (sections 2 (1) and 3 (1) respectively. The Health and Safety at Work Regulations 1999 require employers, and self-employed persons by regulation 3 to "make a suitable and sufficient assessment of the risks to health and safety of persons not in his employment arising out of or in connection with the conduct by him of his undertaking" this requires an employer, and self-employed person, to undertake a risk assessment of the tree stock on the land which forms part of the undertaking.

"The Health and Safety at Work Act 1974 places a duty on employers to ensure, so far as is reasonably practicable, that in the course of conducting their undertaking, employees, and members of the public are not put at risk (sections 2 (1) and 3 (1) respectively".

[14] (National Tree Safety Group, 2011)
[15] (National Tree Safety Group, 2011)

"The Health and Safety at Work Regulations 1999 require employers, and self-employed persons by regulation 3 to "make a suitable and sufficient assessment of the risks to health and safety of persons not in his employment arising out of or in connection with the conduct by him of his undertaking" this requires an employer, and self-employed person, to undertake a risk assessment of the tree stock on the land which forms part of the undertaking".

11. Qualifications & Experience

This report was constructed and written by

Oliver Lower ND Arb L3, Dip Arb L4, Dip Arb L6

Director & Principal Arboricultural Consultant

I have 19yrs experience in the Arboricultural industry having worked in both the UK and New Zealand during that time. and have attained the following accreditations an ABC Level 4 Diploma in Arboriculture as well as a LANTRA Professional Tree Inspection Qualification. I provide consultancy service to a number of local government authorities and have been a lecturer delivering 2nd year Level 3 and Level 4 Arboriculture training at a renowned Arboricultural college in the UK. A comprehensive list of my qualifications, experience and training can be found on LinkedIn using this link: https://www.linkedin.com/in/oliver-lower-527a7377/

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I have 17yrs experience in the Arboricultural industry having worked in both the UK and New Zealand during that time. and have attained the following accreditations an Level 4 Diploma (ABC) & Level 6 Diploma (ABC) in Arboriculture as well as a LANTRA Professional Tree Inspection Qualification. I provide consultancy service to a number of local government authorities and tutor in Arboriculture at Merrist Wood college. A comprehensive list of my qualifications, experience and training can be found on LinkedIn using this link: https://www.linkedin.com/in/oliver-lower-527a7377/

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