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Arboricultural Report

For

30 Cardinal Drive, Waterlooville
PO7 8LZ

Prepared for: Trinity Claims

Prepared by **Trevor Heaps** BSc, MICFor, M. Arbor.A.

Date: 15th October 2019

Ref: TH 2159

Summary

Cracking has been noted within the rear conservatory of 30 Cardinal Drive. Tree-related subsidence is suspected of being the main cause.

Very little technical information has been provided at this stage, and so the findings of this report are based on my observations and experience.

A site visit has been carried out, and it is considered more likely than not that two third-party Oak trees have contributed to the damage.

Remedial works have been recommended.

Note. This is in an initial appraisal report and recommendations are made based on the limited information provided. The report may be subject to review upon receipt of further information being made available.

Contents

1.0	Introduction	1
2.0	Instruction	1
3.0	Limitations	1
4.0	Documents provided	2
5.0	Statutory tree protection	2
6.0	Ecological constraints	2
7.0	The tree survey.....	3
8.0	Tree damage in context.....	3
9.0	The damaged structure	4
10.0	The Soils and Topography	4
11.0	The trees	4
12.0	Discussion	5
13.0	Conclusions	5
14.0	Other useful information.....	6
15.0	Signature.....	7
Appendix 1 - Professional résumé		8
Appendix 2 - Tree data schedule.....		9
Appendix 3 - Tree data schedule explanatory notes		10

1.0 Introduction

1.1 I am Trevor Heaps, Director of Trevor Heaps Arboricultural Consultancy Ltd. I have experience and qualifications in the field of Arboriculture. Further information is provided in Appendix 1.

1.2 Contact details:

Who	Name	Organisation	Details
Arboricultural consultant	Trevor Heaps	THAC Ltd. 12 Plover Drive, Milford-on-Sea, Hampshire, SO41 0XF	Tel: 07957 763 533 E-mail: trevor@trevorheaps.co.uk
Client		Trinity Claims	
Havant Borough Council - LPA	Tree Officer	Havant Borough Council, Public Service Plaza, Civic Centre Road, Havant, PO9 2AX	Tel: 023 9244 6015 E-mail: planning.development@havant.gov.uk

2.0 Instruction

2.1 We are instructed to visit the damaged property, survey all significant vegetation growing within influencing distance of it, appraise all supporting documentation and then determine which vegetation is likely to have caused or contributed to the damage.

2.2 We are then to provide recommendations for remedial action that will provide on-going and long-term stability, allowing repairs to be undertaken.

3.0 Limitations

3.1 We are arboricultural experts and not qualified to comment on structural or geotechnical matters.

3.2 The primary focus of this report is to discuss the various information provided by the other experts against the various arboricultural factors noted during the tree survey.

3.3 This report is a best assessment of the trees and their setting at the time of the survey; any subsequent building works or changes to landform in the proximity of the trees may invalidate the advice given.

4.0 Documents provided

4.1 The following technical information was provided to assist our assessment:

Technical information	Provided?
Description of damage (i.e. is structure falling towards implicated vegetation)	N
Engineer's report (background and description of damage)	N
Borehole log (foundation depth)	N
Soil Testing (plasticity index and moisture content etc.)	N
Root analysis (identification of roots found beneath damaged structure)	N
Drain survey (to check whether drains damaged and leaking)	N
Level monitoring (to demonstrate seasonal movement)	N
Crack monitoring (to demonstrate seasonal movement)	N
Heave Assessment	N
Other?	N

5.0 Statutory tree protection

5.1 According to the Council's website, the belt of trees to the south-west of the property (which include the two Oaks discussed within this report) are covered by a Tree Preservation Order (TPO 1102).

5.2 The property is not within a Conservation Area.

6.0 Ecological constraints

6.1 The Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000) provides statutory protection to birds, bats and other species that inhabit trees.

6.2 In addition to any tree matters considered in this report, these animals could impose significant constraints on the timing of recommended tree works.

7.0 The tree survey

7.1 The property was visited by Trevor Heaps, on the 9th October 2019.

7.2 The trees were inspected from ground level, in accordance with the Visual Tree Assessment (VTA) methodology, developed by Mattheck & Breloer (The Body Language of Trees, 1994).

7.3 No soil or root samples were taken for analysis and no drain covers were lifted.

7.4 Tree heights, crown spreads and stem diameters were estimated. Distances between trees and the property/structures were determined using a laser distance finder.

8.0 Tree damage in context

8.1 In order for a structure to be damaged by a tree (due to subsidence), the following conditions must exist:

1. The structure should be situated on shrinkable clay soil.
2. The structure should have live tree roots growing beneath its foundations
3. The live tree roots should belong to a tree that has the potential to desiccate clay.
4. The clay beneath the foundation should be desiccated enough for it to lose its ability to support the damaged structure.

8.2 In order to implicate a tree:

1. It should be within influencing distance of the damaged structure
2. Its roots should be analysed (usually by DNA testing) – to determine whether they match the roots found beneath the foundations of the damaged structure.
3. The movement of the damaged structure should be tracked over the course of a few specific months by level monitoring. This is because, the damaged part of the structure will subside over the summer months (as tree roots extract water from the clay soil beneath), stabilise during the autumn, and then lift during the winter months (as the dried clay soil re-wets and expands).

9.0 The damaged structure

9.1 The original building is a semi-detached dwelling. A lean-to and rear conservatory have been added to the side and rear.

9.2 The rear conservatory appears to be falling away from the main dwelling.

9.3 We have no information on the age of the dwelling / extensions, nor the depth of any foundations present.

10.0 The Soils and Topography

10.1 The property occupies a level site with no adverse topographical features.

10.2 No information on the underlying sub-soils was provided and therefore the following is taken from the British Geological Survey's website.

10.3 The soil texture is clayey loam to silty loam, and the soil parent material is prequaternary marine / estuarine sand and silt.

11.0 The trees

11.1 The relevant trees' locations are shown in the Site Plan (Appendix 4). Further information can be found in appendices 2 & 3.

11.2 To help visualise the general condition of the trees in the Site Plan, they are color-coded as follows:

- **Coloured green - Acceptable** - These are in a normal condition with no significant defects.
- **Coloured amber - Be aware** - These trees are either within influencing distance of the property, or defects have been noted that could lead to future problems.
- **Coloured red - Take action** - These are hazardous to life and property and cannot be made safe by remedial works alone. These will need to be removed.

12.0 Discussion

12.1 No technical information has been provided at this stage, and so the following is based on my observations and experience:

- The damaged conservatory is situated on shrinkable clay soils (although it is not known how shrinkable).
- Two third-party Oaks are growing well within influencing distance of the damaged structure.
- Oaks are high water demand trees and have the potential to desiccate clay soils.
- Oaks are deep-rooting trees and have the potential to develop roots 3-4m below ground level.

12.2 Further to these technical facts, the policy holder also confirmed that the cracks appeared in the summer of 2018 (when the UK was experiencing a particularly hot and dry summer), closed during the winter of 2018/2019 and then re-opened during this summer (2019). This pattern of cracking movement usually indicates tree-related subsidence.

13.0 Conclusions

13.1 It is more likely than not that the two Oaks (T1 and T2) are contributing to subsidence damage.

13.2 To allow the soils to recover, and to provide long-term stability, the Oaks should be removed. Alternatively, the damaged structure should be under-pinned to ensure the foundations extend to beneath the influencing depth of the Oaks.

13.3 The tree owners should be contacted and provided with a copy of this report, to make them aware of the damage and to give them an opportunity to take appropriate remedial action.

13.4 If further technical evidence is required to implicate the Oaks, then the following information should be provided:

- Soil testing - to provide information on plasticity indexes and moisture content
- Bore-hole testing - to check foundation depth of conservatory and evidence of rooting
- Level monitoring - to confirm whether or not the soils are recovering during the autumn and winter months

14.0 Other useful information

14.1 The appearance of any building defects should always be investigated promptly. If vegetation is implicated, then early removal of suspected trees may stabilise the situation at relatively little cost. Always contact a qualified structural engineer and arboriculturist before considering removal.

14.2 If a drainage system is damaged in anyway, this can allow roots to penetrate and proliferate; however, if a drainage system is watertight, roots have little capacity to gain access and cause damage. If further information is required, a drainage expert should be consulted.

14.3 Trees (and their roots) do not respect property boundaries and therefore trees on third-party land may be included in this report. If neighbouring trees are suspected of causing damage (or have the potential to cause damage) and you need to contact a tree owner about their tree, a sensible and non-confrontational approach (to request that appropriate action be taken) is advised. If the tree owner is uncooperative, then you should write to them by recorded delivery (i.e. put them on notice in case of any future problems) and keep a copy of the letter. You may also send them a copy of this report.

14.4 You have a common law right to cut back overhanging branches (and encroaching roots) back to a property boundary line. However, the following points should be noted:

- Your common law rights are intended to allow you to carry out the minimum amount of work.
- You must not trespass onto the land on which the trees are growing.
- Branches or roots must not be cut back beyond the boundary in anticipation of them overhanging.
- Any branches, fruit or roots that are removed must be carefully returned to the tree owner unless they agree otherwise.
- All work must be carried out with due care (i.e. you should avoid damaging property or carrying out work that would leave the tree unsafe or dangerous to avoid any comeback against yourself).
- You cannot reduce the height of trees or hedges on neighbouring land.
- While not required under common law, it would be courteous to notify the tree owner of your intentions to help allay any misunderstanding.

14.5 If you are unsure of the location of property boundaries, you should either check with Land Registry (<http://www.landregistry-titledeeds.co.uk/>) or with the Royal Institute of Chartered Surveyors (RICS) using the link below:

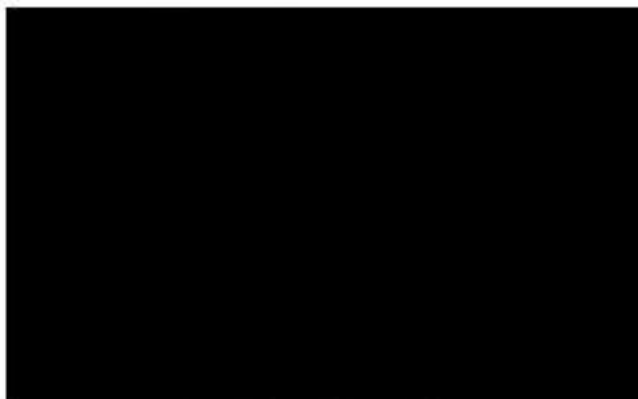
<http://www.rics.org/uk/join/member-accreditations-list/dispute-resolution-service/neighbour-disputes-service/>

14.6 When appointing a tree works contractor, please only use properly qualified and experienced companies and always check that they carry Public Liability Insurance within a minimum of £2,000,000 cover, and the relevant Employers Liability Insurance. A list of contractors approved by the Arboricultural Association can be found at www.trees.org.uk or by calling 01242 522 152.

15.0 Signature

15.1 This report represents a true and factual account of the potential arboricultural impacts, and makes recommendations for appropriate remedial action, at the subject property.

Signed

A large black rectangular box redacting the signature of Trevor Heaps.

Trevor Heaps
Chartered Arboriculturist
BSc (Hons), MArborA, MICFor.

Dated

15th October 2019

Appendix 1 - Professional résumé

I am Trevor Heaps, director of Trevor Heaps Arboricultural Consultancy Ltd. I am a Chartered Arboriculturist, a Professional Member of the Arboricultural Association (AA) and hold a First-Class Honours Degree in Arboriculture.

Professional training

- Arboriculture and Bats: Scoping Surveys for Arborists (BCT & AA) - October 2017
- Tree Science (AA) - June 2016
- OPM (Oak Processionary Moth) Training (FC) - May 2016
- Visual Tree Assessment (Arboricultural Association) - October 2015
- Trees and the Law (Dr Charles Mynors) - June 2015
- Mortgage (Home Buyers) Report Writing (LANTRA / CAS) - February 2015
- Tree Preservation Orders - effective application (LANTRA / CAS) - November 2014
- Professional Tree Inspection 3-day course (LANTRA / AA) - July 2014
- Arboricultural Consultancy Course (AA) - May 2014
- Further down the subsidence trail 1-day course (AA) - April 2013
- Getting to grips with subsidence 1-day course (AA) - November 2012

AA – Arboricultural Association

BCT – Bat Conservation Trust

CAS – Consulting Arborist Society

FC – Forestry Commission

Appendix 2 - Tree data schedule

Ref	Species	Age	Height (m)	Physio. condition	Structural condition	VTA	Relative age	Growth potential	Distance to nearest structure (m)	Species water demand	Mature height (m)	Recorded tree-to-damage distance (m)	Comments	Rec's	Priority of work	When to re-inspect
T1	Quercus robur (Common Oak)	M	25	Normal	Normal	2	Much older than damaged part of property	Medium	10.5	High	20	The maximum tree-to-damage distance recorded is 30m. In 90% of cases, the tree was closer than 18m	Growing on third-party land (dbh estimated). Pruned (badly) in past. Asymmetrical crown.	Advise landowner that tree may be contributing to subsidence - removal recommended.	Within 3 months	N/A (on third-party land)
T2	Quercus robur (Common Oak)	M	25	Poor	Fair	2	Much older than damaged part of property	Low	13.5	High	20	The maximum tree-to-damage distance recorded is 30m. In 90% of cases, the tree was closer than 18m	Growing on third-party land (dbh estimated). Sparse. Die-back in crown. Low bud/leaf density. Tree is in decline and so is unlikely to be significantly contributing to the damage, but may need to be removed due to its poor condition.	Advise landowner that tree may be contributing to subsidence - removal recommended.	Within 3 months	N/A (on third-party land)

Appendix 3 - Tree data schedule explanatory notes

This section explains the terms used in the **Tree Data Schedule** in Appendix 2.

Ref: Each item of vegetation has its own unique number prefixed by a letter such that:

T1=Tree **S2**=Shrub or stump **G3**=Group **H4**=Hedge **W5**=Woodland

Species: Common names are given

Age: Indicates the estimated age the tree as one of the following categories:

- **Y - Young** - Usually less than 10 years old
- **SM - Semi-Mature** - Significant future growth to be expected in both height and crown spread (typically below 30% of life expectancy)
- **EM - Early-Mature** - Full height almost attained. Significant growth may be expected in terms of crown spread (typically 30-60% of life expectancy)
- **M - Mature** - Full height attained. Crown spread will increase but growth increments will be slight (typically 60% or more of life expectancy)
- **V - Veteran** - A level of maturity whereby significant management may be required in order to keep the tree in a safe condition
- **OM - Over Mature** - As for veteran except management is not considered worthwhile

Height (m): The estimated height of the tree, in metres, measured from ground level to the top of the crown

Physio cond.: Indicates the physiological condition of the tree as one of the following categories:

- **Normal** - Healthy tree with no symptoms of significant disease
- **Fair** - Tree with early signs of disease, small defects, decreased life expectancy, or evidence of less-than-average vigour for the species
- **Poor** - Significant disease present, limited life expectancy, or with very low vigour for the species and evidence of physiological stress
- **Very poor** - Tree is in advanced stages of physiological failure and is dying
- **Dead** - No leaves or signs of life

Struct. cond.: Indicates the structural condition of the tree as one of the following categories:

- **Normal** - No significant structural defects noted
- **Fair** - Some structural defects noted but remedial action not required at present
- **Poor** - Significant defects noted resulting in a tree that requires regular monitoring or remedial action
- **Very poor** - Major defects noted that compromise the safety of the tree. Remedial works or tree removal is likely to be required.
- **Dead** - No leaves or signs of life

VTA – Visual Tree Assessment

1 (tree coloured green) – No issues noted (at present) - These trees are considered to be in good condition / acceptable location with no significant defects noted

2 (tree coloured yellow) – Be aware - These trees are either within influencing distance of the property, or defects have been noted that could lead to future problems.

3 (tree coloured red) – Take action - These trees are considered to be hazardous to life and property and cannot be made safe by remedial works alone. These trees will need to be removed

Relative age: An indication of the age of the tree compared to the main building / structure

Growth potential: An indication of the future growth than can be anticipated from a tree:

- **High** - Young and vigorous tree capable of significant enlargement in the future
- **Medium** – (Med) - Middle-aged tree with reduced potential for future growth and enlargement
- **Low** – Tree in terminal decline; lacking vitality or vigour with limited potential for future growth or enlargement

Dist. to nearest structure (m): Measurement is taken from the centre of the tree / shrub to the closest part of nearby significant structure(s) such as house, garage, and conservatory

Species water demand: High, Moderate (Mod.) or Low: Some trees (such as poplar, willow and oak) have high water demands and can be problematic when growing close to susceptible properties on shrinkable clay soil. Other trees (such as beech and birch) have lower water demands. This column gives an idea of where a particular species of tree may fall within this hierarchy. The information is taken from NHBC Standards - Chapter 4.2 (Building near trees)

Mature height (m): An estimation on the tree's ultimate, mature height; taken either from NHBC Standards - Chapter 4.2 (Building near trees); a Field Guide to the trees of Britain and Northern Europe (Alan Mitchell); or the author's own experiences.

Recorded tree-to-damage distance (m): This information is taken from the book 'Tree Roots and Buildings 2nd Edition' (Cutler and Richardson, 1989). It gives an indication of the maximum recorded distance between trees and the buildings they have damaged. In order to provide more meaningful information, this column also shows (where data is available) the distances between trees and the buildings they have damaged in the majority (90%) of cases

Comments: Tree form and pruning history are recorded along with an account of any significant defects.

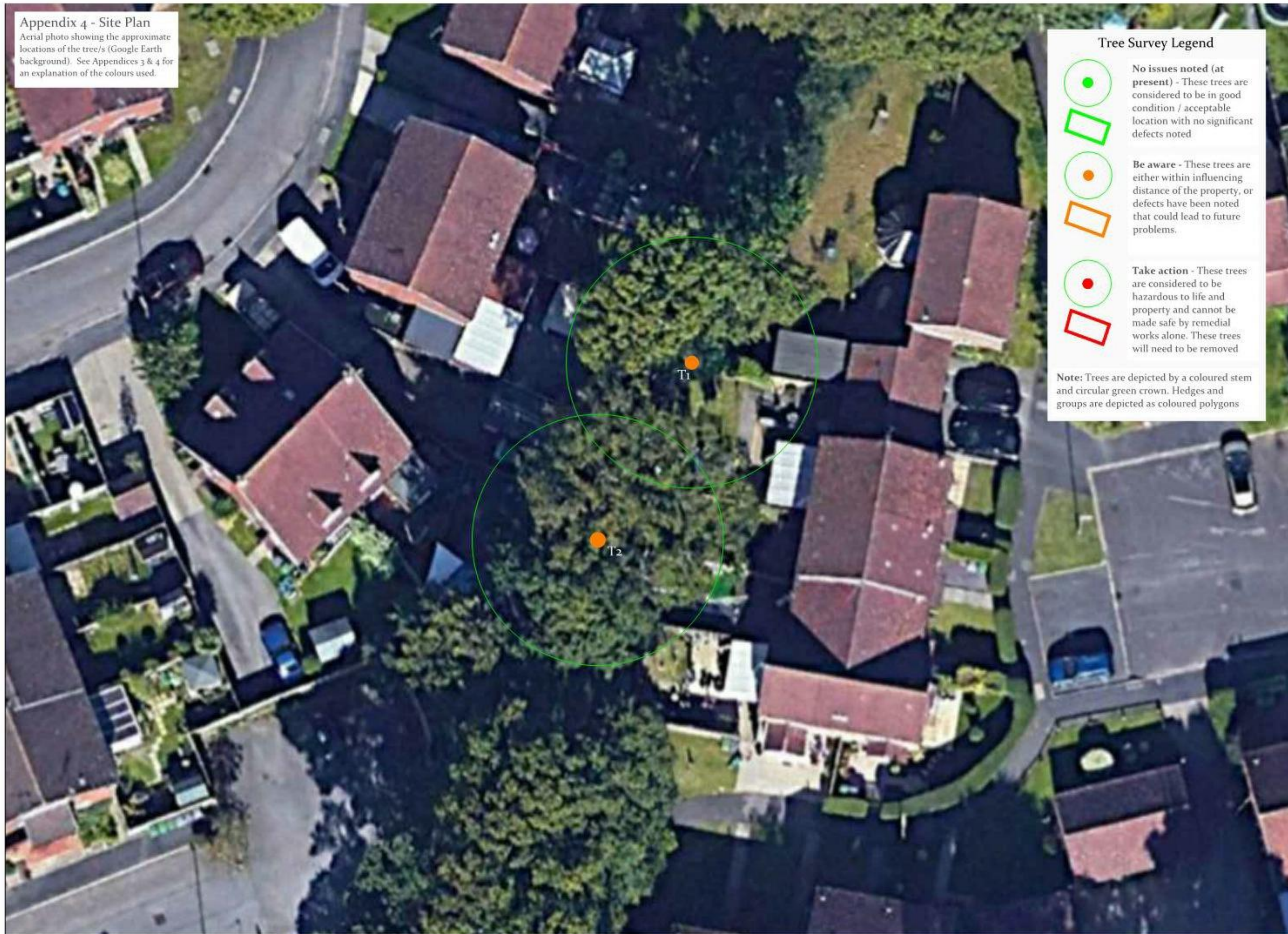
Rec's: Recommendations are usually based on any defects observed and intended to ensure that the tree is maintained in an acceptable condition.

Priority of work: Depending upon the threat posed by the tree, and the likelihood of failure, any recommendations made should be carried out according to the given priority scale.

When to re-inspect: An interval of 6 months, 1 year, 1.5 years, 3 years or 5 years is allocated before the next inspection is due. Wherever practical, consideration should be given to seasonal changes so that deciduous trees are not always surveyed in winter when they have no leaves, or in summer when leaves may obscure branches within the upper crown

Appendix 4 - Site Plan

Aerial photo showing the approximate locations of the tree/s (Google Earth background). See Appendices 3 & 4 for an explanation of the colours used.



Tree Survey Legend



No issues noted (at present) - These trees are considered to be in good condition / acceptable location with no significant defects noted



Be aware - These trees are either within influencing distance of the property, or defects have been noted that could lead to future problems.



Take action - These trees are considered to be hazardous to life and property and cannot be made safe by remedial works alone. These trees will need to be removed



Note: Trees are depicted by a coloured stem and circular green crown. Hedges and groups are depicted as coloured polygons