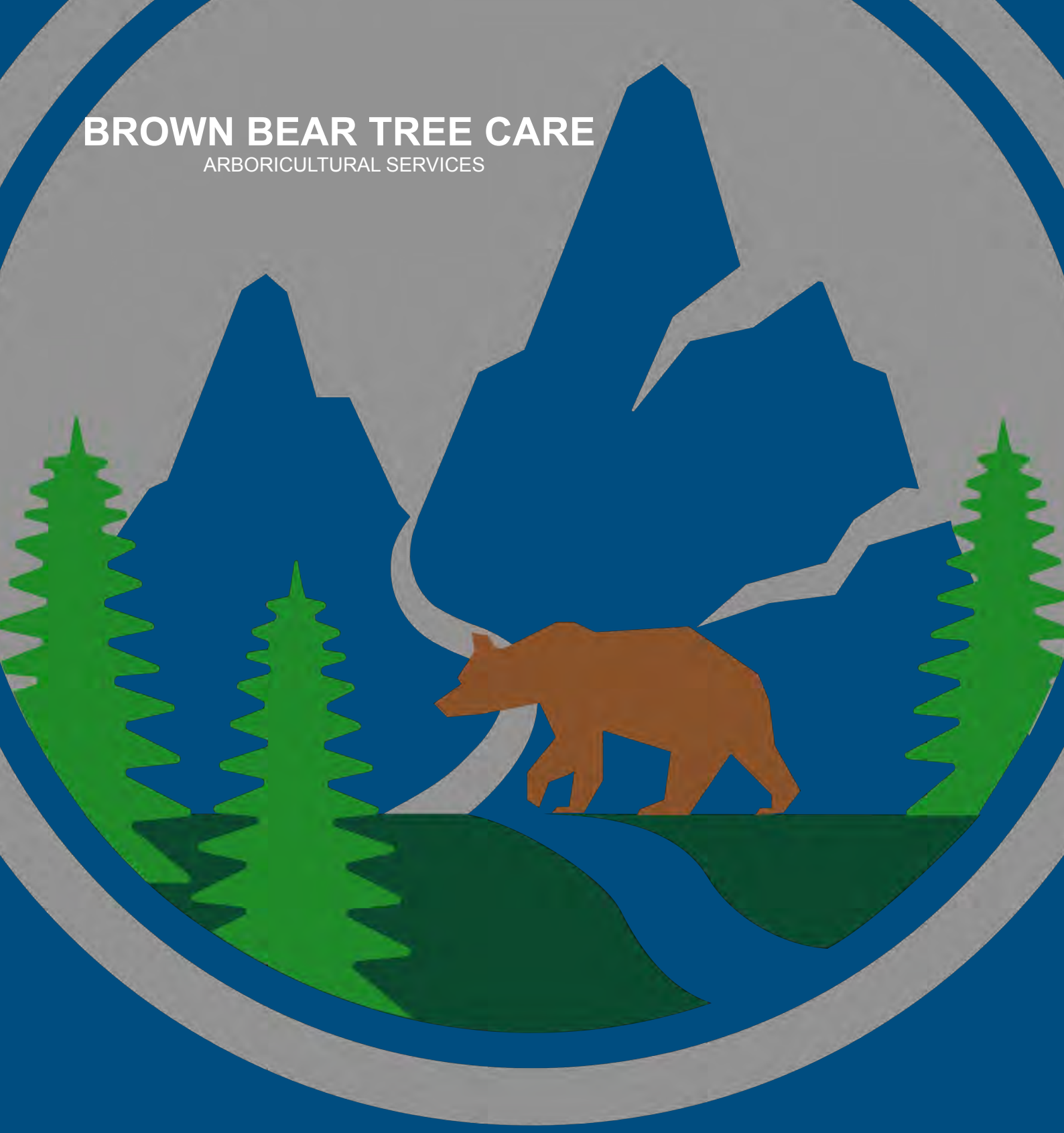
BROWN BEAR TREE CARE

ARBORICULTURAL SERVICES



Visual Tree Assessment

48 Franklin Way, Barrow-upon-Humber, DN19 7BJ

ADAM SCOTT L3 DIP FOR & ARB, TechArborA

VTA22-01

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I hope that this report provides all the necessary information, but should any further advice be needed please do not hesitate to contact me.

Any enquiries regarding this report should be addressed to:

Brown Bear Tree Care Ltd

Houseboat 7

The Boat Yard

Campus Way

Lincoln

LN6 7WW

Tel: [redacted]

Email: [redacted]

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[redacted]

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TE7341

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Introduction

1. Qualifications and experience

I have based this report on my site observations and any provided information and I have come to conclusions in the light of my experience. I hold a Level 3 Diploma in Forestry and Arboriculture, as well as being a Technician Member (membership number TE7341) of the Arboricultural Association. To retain this membership, I complete a minimum of 10 hour of continuous professional development (CPD) a year, which consists of attending various courses approved by the Arb Association.

I originally transitioned to arboriculture from the Royal Navy Submarine Service where I obtained my Level 3 Diploma in Management amongst other skills.

I have been in the arboricultural industry for over 5 years and during this time I have works for 2 large contractors one of which was an Arb Approved contractor based in Lincoln.

I am passionate about trees and continually strive to further knowledge and expertise.

2. Instruction

I am instructed by Mr Martin Dunn (referred to as the ‘client’ from here on) to inspect the significant tree located at 48 Franklin Way, Barrow-upon-Humber, DN19 7BJ and to provide a report to fulfil the following criteria:

- A schedule of the relevant tree(s) to include basic data, location and condition assessment.
- A tree risk assessment based on targets, defects and likelihood of failure.
- A schedule of any subsequent work that may be required.
- Complete an application form to work on protected trees and submit this to the local authority with this report as supplementary evidence.

3. Relevant background information

Prior to the tree inspection, my client advised me that;

- He has concerns over the stability of the tree in relation to possible decay.

4. Documents and information provided

My client has not provided me with any additional information.

5. Scope of this report

This report is only concerned with the prominent tree within the site. It takes no account of any trees outside this remit or any building structural issues. It includes a preliminary assessment based on the site visit and any documents provided, listed in section 3 and 4 above.

The survey is based upon information that was available at the time of the inspection. Further inspections are necessary over time to give a fuller picture of the health of trees.

6. Mapping

I have not been provided with a topographical survey of the site. I have plotted the trees by means of Qfield mobile GIS software. The GPS accuracy is estimated to be 1.5-3 meters depending on atmospheric conditions.

Site plans showing all relevant tree locations and any other relevant details can be found in Appendix B.

7. Technical references

This arboricultural report is based on the following primary technical references:

- British Standards Institution (2010) BS 3998 Recommendations for tree work
- Principles of Tree Hazard Assessment and Management. D, Lonsdale
- Hazards from trees. A general guide. D, Lonsdale
- Field Guide for Visual tree Assessment Updated, C, Mattheck
- The body language of trees – A handbook for failure analysis. C, Mattheck & H, Breloer.
- Diagnosis of ill-health in trees. RG Strouts & TG Winer.
- Common sense risk management of trees. Guidance on trees and public safety on the UK for owners, managers and advisers. NTSG
- The CODIT Principle: Implications for best practices. D, Dujesiefken & W, Liese
- Managing Trees for Safety. NTSG
- Tree pests and Diseases, An Arborists Field Guide. Arboricultural Association
- Fungi on Trees, An Arborists Field Guide. Arboricultural Association
- Assessment of Tree Forks. Dr D, Slater

Limitations

8. Survey

The inspection was carried out from ground level only and relates only to arboricultural aspects. All visual observations and recommendations, relate, to the condition of the trees on the day of the survey. The trees have been assessed with the aid of a Nylon mallet for the purpose of detecting changes in resonance which may indicate that further investigation is required. Any unusual weather conditions, changes in soil, soil levels and changes to surroundings may result in a dramatic change in the trees health.

9. Time limit

Due to the changing nature of trees and other site circumstances, this report and any recommendations made are limited to an 18-month period, this is to allow the tree to be observed both whilst in leaf and dormant. Any alteration to the site and any development proposals could change the current circumstances and may invalidate this report and any recommendations made.

10. Tree health

Trees are dynamic structures that can never be guaranteed 100% safe: even in good condition they can suffer damage under average conditions. Regular inspections can help to identify potential problems before they become acute.

11. Justification of works

Where management action / tree surgery is recommended, this is based on maximising the tree's safe useful life expectancy (SULE), given its current situation or the safety of persons and surrounding targets. A lack of recommended work does not imply that a tree is safe and likewise it should not be implied that a tree would be made safe following the completion of any recommended work.

12. Buildings

This report does not consider the structural condition of existing buildings, nor the impact of existing trees on their foundations. If there are concerns over such matters the advice of a structural engineer should be sought.

Site visit and observations

13. Site visit

I carried out an un-accompanied site survey on 01/03/2022. All of my observations were from ground level. I did have access to trees outside the client's boundaries and consent was given to inspect and take measurements as needed or the trees were on public open space. The weather at the time of inspection was overcast with good visibility, no precipitation, no wind and mild temperatures. I have taken various photographs of the site for reference and are kept on file; photos are added into the report only if they are needed to highlight a specific issue.

14. Brief site description

Franklin way is located in the town of BArrow-upon-Humber in a relatively new build area. The site is surrounded by similar residential developments. The site consists of a house that is currently occupied and set to the east of the site boundary and surrounded by garden from the north following west and to the south (see Appendix B). No utility services were observed on site. No visual inspections of any services were made below ground level and there is no history with the site.

15. Identification and location of trees

The tree's location has been plotted in QGIS using maps provided by mapserve and can be found in Appendix B.

16. Systematic method of assessment

I visually inspected the significant trees and recorded the information in the table in section 17.

This inspection was of a preliminary visual tree assessment (VTA) nature that was visible from accessible points at ground level and also included detailed investigation with the use of a nylon sounding hammer to assess the internal function of the stem / buttress / roots area.

The methodology employed in the assessment of trees undertaken by Brown Bear Tree Care takes into consideration the following points (but not in any particular order of importance) by firstly carrying out a Visual Tree Assessment (VTA), this includes:

- A distance visual assessment of the tree taking into account the overall shape, form, foliage colour appropriate for the time of year and any other elements that do not appear normal for that particular species.
- The exposure to the weather. This can be due to it being a solitary tree or that surrounding tree cover could have been removed exposing it to 'new wind forces' acting on the canopy.

- The prevailing ground conditions. For example: soil erosion, ponding, soil characteristics and the impact on the tree, presence / lack of vegetation.
- Any information as to the tree's history or history of the surrounding trees / landscape. For example: previously failed limbs, surrounding tree removal / failure, excavations, fruiting bodies seen.
- Knowledge of previous documented information of issues with a particular species. For example: tight union failure on Beech, poor compartmentalisation of Willow.
- The health and visual defects of the tree. For example: cavities, the trees 'body language', dieback, foliage irregularities, fungal brackets and deadwood.

From this information an assessment is made of the likelihood of the part/s most likely to fail in relation to the target / occupancy value within the trees failure area and recommendations are then made, these can include the following but is not exhaustive;

- Recommendations for further visual monitoring
- Investigation with more advanced decay detection equipment such as: Increment borer and lactometer, Micro drill or sonic tomography.
- Remedial pruning / limb removal.
- Whole tree removal.
- Pruning for aesthetical reasons.
- Removal of significant deadwood.
- Or, no work may be needed.

The primary reasoning behind this method of assessment is to identify a foreseeable failure, make an informed decision and act on it within a specified time and know that the response is reasonable in relation to the target area and the financial resources available.

Condition assessment

17. Assessment

See Appendix A

18. Photographs

See Appendix A

Recommendations

19. Present recommendations

Any works required to establish acceptable levels of risk for the site and to maintain the tree in line with good arboricultural management are listed in a priority scale and should be carried out within the time scale indicated.

These lists of works are designed to highlight dangerous situations and are necessary for safety reasons or to establish high levels of arboricultural management to the existing tree.

REASONING: Proactive intervention rather than reactive to failure

Other considerations

20. Tree Preservation Order (TPO) and Conservation Area (CA)

A tree preservation order, referred to as a 'TPO', is an order made by a local planning authority ('LPA') in respect of trees or woodlands.

The principal effect of a TPO is to prohibit the: Cutting down, uprooting, topping, lopping, wilful damage, or wilful destruction of trees without the LPAs consent. The cutting of roots is potentially damaging and so, in the Secretary of State's view, requires the LPAs consent.

Anyone who, in contravention of a TPO, wilfully damages a tree in a way that is likely to destroy it is guilty of an offence. Anyone found guilty of this offence is liable, if convicted in the Magistrates Court, to a fine of up to £20,000. In serious cases a person may be committed for trial in the Crown Court and, if convicted, is liable to an unlimited fine.

Conservation Areas are areas of special architectural or historical interest with a character or appearance that is desirable to preserve or enhance. Trees may often contribute to the special character of the area.

All trees in a Conservation Area are subject to controls which enable the LPA to protect the special character of the area created by the trees. If trees have a specific Tree Preservation Order (TPO) on them, then the normal Tree Preservation Order controls apply.

You must give the LPA 6 weeks' notice, in writing, of your intention to do any work to trees in a Conservation Area. You must not carry out any work during the six-week period, which starts from the date of receipt of your notification by the council, unless you receive written permission to do so.

Work which is not exempt and is carried out without formal notification or within the six-week period without the written consent of the council is illegal. The LPA may prosecute offenders and fines of up to £20,000 for each tree may be imposed by the Magistrates Court in the event of offenders being convicted of an offence. If proceedings are instituted in the Crown Court fines are unlimited. There is a duty to replace any tree removed without permission.

It has been confirmed that there is a Tree Preservation Order in force on the tree in question. It is strongly advised that prior to undertaking any work on the tree written consent is granted from the local authority via an application or through the planning process.

21. Local authority details

North Lincolnshire Council
Church Square House
30-40 High Street
Scunthorpe
North Lincolnshire
DN15 6NL

22. Tree works

The management options noted in the survey data should be followed so to keep a maintained tree stock on and around this development site, particularly giving clearance from properties and over any adopted roads or footpaths.

23. Implementation of works

All tree works should be carried out to BS 3998 Recommendations for Tree Work as modified by more recent research. It is advisable to select a contractor from the local authority list and preferably one approved by the Arboricultural Association.

24. Local Arboricultural contractors

If requested I can provide a list of reputable arboricultural contractors that have carried out work on previous projects.

25. Safety

Tree works can be a hazardous profession, so it is important that all operatives have the necessary and relevant training, health and safety policy and valid forms of insurance.

26. Statutory Wildlife obligations

The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000, provide statutory protection to birds, bats and other species that inhabit trees. All tree work operations are covered by these provisions and advice from an ecologist must be obtained before undertaking any works that might constitute an offence.

27. Future considerations

Any remaining trees should be inspected on a regular basis by a qualified arboricultural consultant and should not exceed a 5-year interval.

Appendix A

Visual Tree Assessment

Date: 01/03/2022

Site Address: 48 Franklin Way, Barrow-upon-Humber, DN19 7BJ

Inspected by: Adam Scott

Client: Mr Martin Dunn

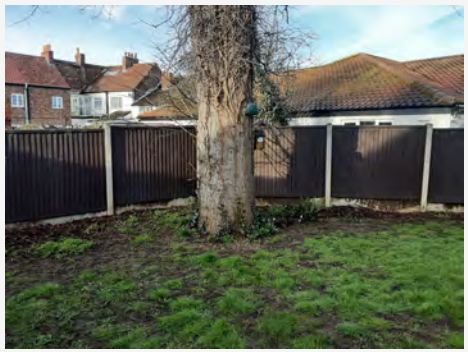
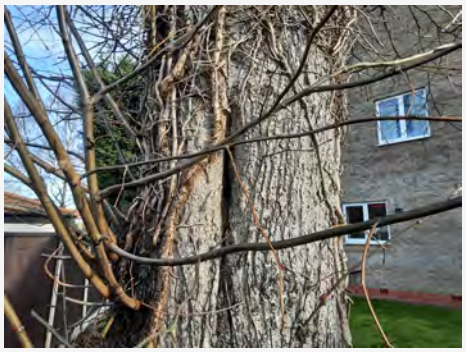
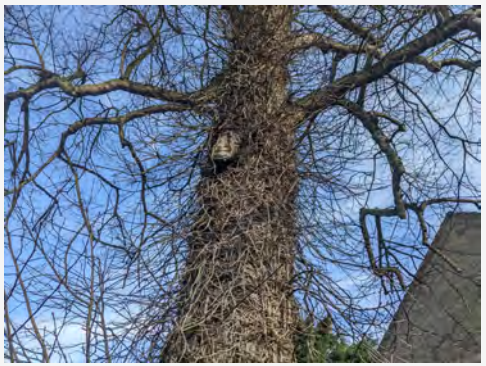
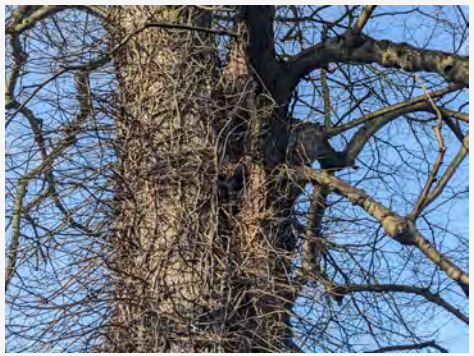
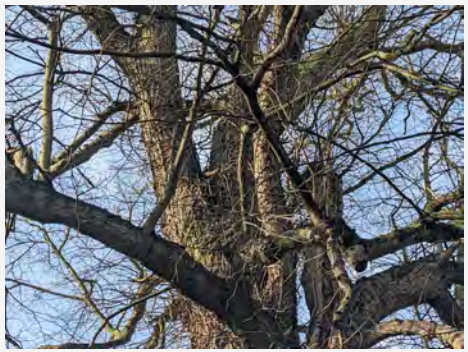
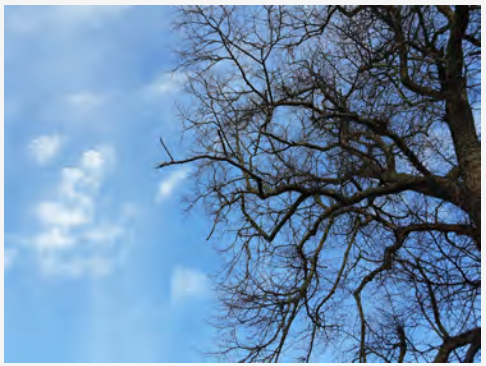
Weather: overcast, no wind, no precipitation, mild temperatures, good visibility

Tree No	Species (*Taxonomic*)	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Observations	Physiological condition	Structural Condition	Age Class
T5	European Lime (*Tilia x europeae*)	22.5	986	N-8.5 E-8.6 S-11.4 W-9.5	**Location:** Tree is situated in the rear garden of the above property approx. 1.5 meters from the North Eastern boundary fence. **Roots & Buttress:** Root plate is grass covered with no signs of compaction. There is no buttress flare **Stem:** Moderate dead ivy colonisation from 2 meters to 10 meters Epicormic growth East from base to 2 meters. Cavity at south at approx 1.5 meters, opening is 400mm vertically and 40mm horizontally with exposed heartwood, secondary hardening intact, no indication of decay pathogens. **Scaffold & Crown:** Large compression union North at approx 5.5 meters, secondary limb with vertical wound with wound wood, unable to determine if secondary hardening is intact. Codominant stems from approx 8 meters with possible compression union partially obscured by dead ivy. Numerous small historic pruning wounds partially occluded may present possible Bat PRF's. Major hanging deadwood South East at approx 10 meters. Major deadwood throughout crown. **Foliage & Buds:** Not in leaf due to dormancy. Good extension growth. Good crown density.	Good	Good	Mature
Recommendations						**Targets**		**Work priority**
It is my recommendation to reduce the trees crown in both height from 22.5m to 17.5m (5m reduction approx 22%) and spread of southern bough limb by 2 meters. This will reduce wind loading by 54% (see ArboStApp report below). Removal of all deadwood, prune clear of the property by 2 meters, remove stem epicormic growth and the remainder of the dead ivy. Reduce the end weight of the damaged limb West at approx 5.5 meters.						Owners dwelling. Multiple neighbours dwellings and outbuildings.		Deadwood 1-2 months
Reinspect	18 Months							

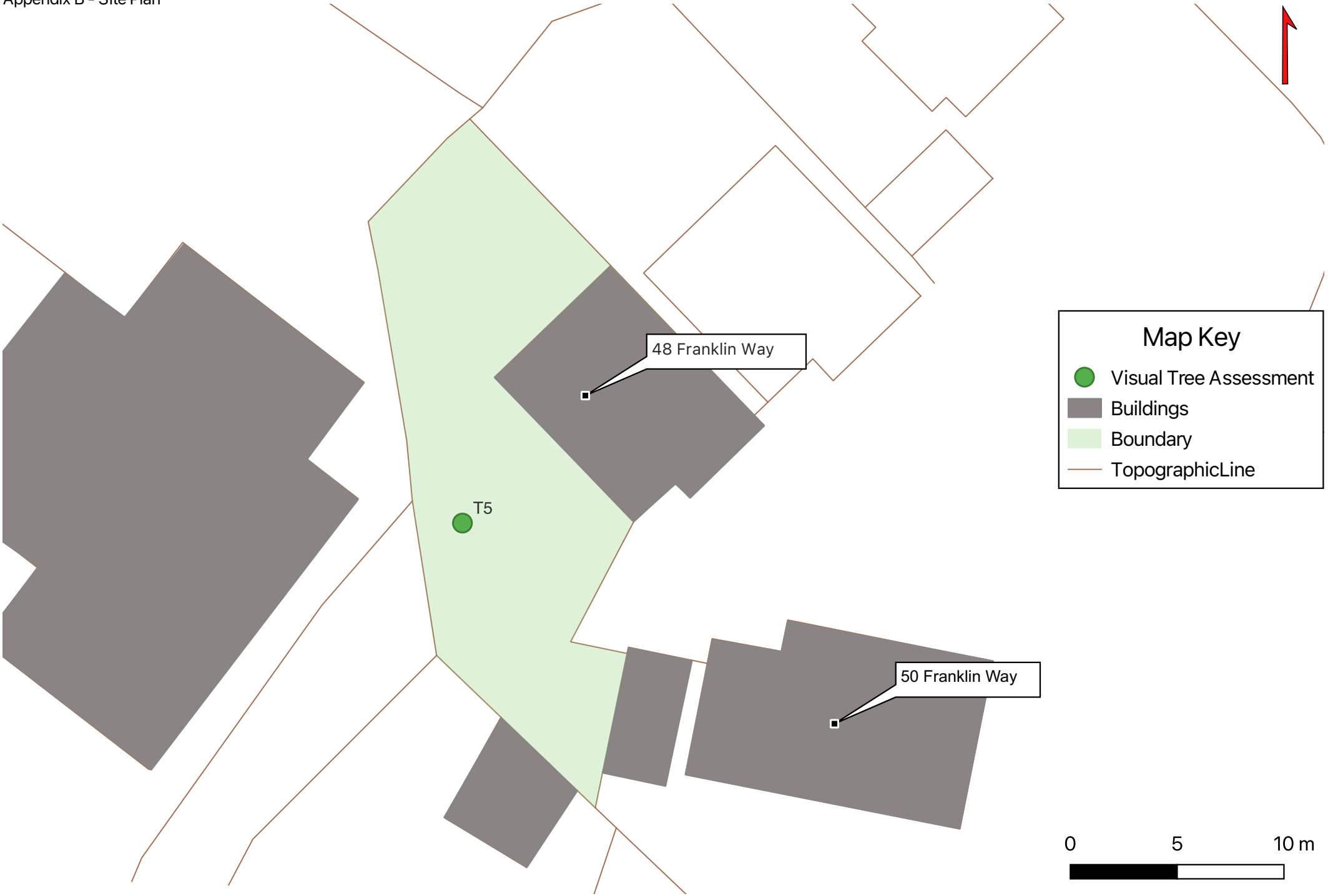
Appendix A

Visual Tree Assessment

Photographs

Location	Root Plate	Cavity South at 1.5m	Large wound and Ivy
			
Compression union North at 5.5m	Possible compression union at 10m	Hanging deadwood South at 10m	Major deadwood West
			

Appendix B - Site Plan



Glossary of Arboricultural Terms

Banana Cracks
These usually form on the underside of leaning trees and are vertical. These can lead to colonisation by decay fungi.

Bleeding

Flow of sap from wounds and/or other injuries.

Bole

The central stem of the tree.

Bough

The gradual curve of a branch or stem

Bracket

Fruiting or spore producing body of wood decay fungi, forming on the external surface of the stem or
trunk.

Branch

A secondary shoot or stem arising from the main stem of trunk.

Branch Bark Ridge

A ridge of bark in a branch crotch that marks where branch and trunk tissue meet and often extends down the trunk.

Branch Collar

Wood that forms around a branch attachment, frequently more pronounced below the branch. The branch collar is used to identify the correct location of all thinning cuts.

Brown Rot
Form of decay where cellulose is digested. The result of brown rot is brittle wood with no tensile strength.

Buttress
Support branch, stem, or root; usually associated with exaggerated growth.

Cavity
An open wound, characterised by the presence of decay and resulting in a hollow structure.

Callus
Undifferentiated tissue initially formed by the cambium around and over a wound.

CODIT
Compartmentalisation Of Decay In Trees is the term used to described how trees deal with decay.

Co-dominant
A situation where a tree has two or more stems which are of equal diameter and relative amounts of leaf area. Trees with co-dominant primary scaffolding stems are inherently weaker than stems, which are of unequal diameter and size.

Compression Union
This is where the wood fibres at a branch or stem union have not knitted together. This can result in union failure due to the continued radial growth of the tree pushing the union apart.

Compression Wood
Type of reaction wood that develops on the underside of branches and leaning trunks in coniferous trees; tends to maintain branch angle of growth or straighten the trunk.

Coppicing

The cutting down of a tree within 300mm (12in) from the ground at regular intervals, traditionally applied to certain species such as Hazel and Sweet Chestnut to provide stakes etc.

Crown
The area of a tree that bares foliage.

Crown Lifting

The raising of clearance between the ground and the first branch on the tree.

Crown spread
The distance the crown extends from the main stem at cardinal points e.i. N, E, S, W.

Deadwood
Woody tissue that is no longer functional, usually branches and graded by size; Minor – diameter less than 50mm and Major – diameter greater than 50mm.

Decay

The process of degradation of woody tissues by fungi and bacteria through decomposition of cellulose and lignin.

Decline

When a tree exhibits signs of a lack of vitality such as reduced leaf size, colour or density.

Defect
A fault or weakness in a tree support system.

Elephant Ears/Ears
This is the term given to the type of reaction wood that occurs either side of a compression union. These help to strengthen compression unions by knitting together wood fibres either side of the union.

Epicormic Growth
Shoot that arises from latent or adventitious buds that occur on stems and branches and on suckers produced from the base of trees.

Fibre Buckling
Visible enlargement of tissue on the down side of a tree stem. Represents the reaction of a stem to a heavy loading. It is normally safe except when coupled with bark defoliation from the top (tensile) part of the loaded stem.

Fungi
Simple plants that lack a photosynthetic pigment. The individual cells have a nucleus surrounded by a membrane, and they may be linked together in long filaments called hyphae. The fruit of which (mushrooms) are often referred to as ‘Fruiting Body’.

Gall
A localised swelling of branch or stem generally caused by fungi, bacteria, insects or a physiological disorder.

Hazard Beam
This is where the end weight of a branch is too much and partially failed, causing a horizontal split to form through the middle of a branch.

Included Bark

Included bark occurs when bark is included into the attachment between two stems, preventing the joining of wood tissue in the area between the stems. Included bark attachments always have an extremely narrow angle between the stems, resembling the letter “V” (rather than the letter “U” or “L” typical in strong attachments). As stems having included bark increase in size, pressure is exerted from the stem expansion and a crack often develops in the crotch between the stems. Included bark attachments have a higher potential for failure in later years.

Lateral
A branch or twig growing from a parent branch or stem in a horizontal direction from the parent stem.

Leader
A dominant upright stem, usually the main trunk.

Lean
Departure from vertical of the stem, beginning at or near the base of the trunk.

Limb
Same as branch, but usually larger and more prominent.

Physiological Condition
An overall assessment of a tree's health graded Good – no significant health issues, Fair – minor symptoms of ill health and Poor – significant ill health.

Pollard
Pruning technique by which young trees or branches are initially headed and then re-headed on an annual basis without disturbing the callus knob.

Reduction
Pruning to decrease height or spread on entire tree or one section; also referred to as reduction or reduced pruning.

Reaction Wood
Specialised secondary xylem that develops in response to lean or similar mechanical stress, to restore the stem to the vertical. Occurs as compression wood in conifers and tension wood in angiosperms.

Retrenchment
This is where the tree turns the upper most crown in to deadwood which often looks like a stag's antlers. This can happen for a number of reasons.

Retrenchment pruning
A form of reduction intended to encourage development of lower shoots and emulate the natural process of tree ageing.

Root
An organ of a tree that serves to maintain mechanical support, to provide water and essential elements from the soil through absorption, and to store energy reserves.

Root Collar
The junction between the root of a plant and its stem, often indicated by the trunk flare.

Sapwood
The outer portion of the wood that has living cells and transports water and nutrients and stores carbohydrates.

Scaffold
A large limb that is or will be part of the permanent branch structure of a tree.

Simultaneous Rot

This is where both Brown and White rot occurs at the same time, eventually this results in ceramic failure of the tree.

Species
A group of plants that resemble each other closely and that interbreed freely. Displayed as common name first and taxonomic name in brackets.

Stem
A woody structure bearing foliage and buds that gives rise to other stems.

Stem Diameter
A measurement of the diameter of the mains stem at 1.3 meters from the ground.

Structural Condition
An overall assessment of a trees structural condition graded; Good – minimal defect, Fair – defects of low significance and Poor – major defects or dead.

Suckers
Adventitious stems arising from the lower trunk or roots.

Tension Wood
Type of reaction wood in angiosperms that forms on the upper side of branch and stems, acting to pull the member back to a vertical orientation or a genetically programmed angle of growth.

Tension Union
This is where the wood fibres at the union have knitted well and form a strong U-shaped union.

Torsional Twist
Often caused by prevailing winds effect on a growing tree over time. The main stem appears twisted, this can sometimes be a species characteristic.

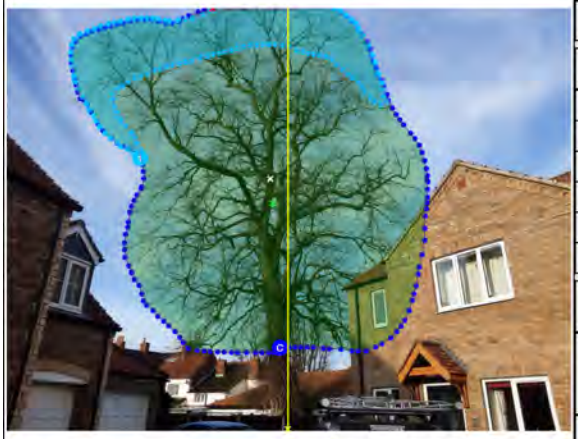
Union
The junction between stem and branch or between stems.

White Rot
A form of decay where the lignin in the cells is broken down leaving white spongy wood tissue with no compressive strength.

Wound
An opening that is created when the tree's protective bark covering is penetrated, cut, or removed, injuring or destroying tissue. Pruning a live branch creates a wound, even when the cut is properly made.

Wound-wood
Differentiated woody tissue that forms after initial callus has formed around margins of a wound. Wounds are closed primarily by wound-wood.

Tree preview



Tree-Id:	T5	Tree species:	Lime
Tree height: [m]	17	DBH: [cm]	98
Original height: [m]	22		
Age: [Years]	80	Maturity: [Years]	---
Site type:	City	Growth rate: [%]	0.5
Address:		48 Franklin Way DN19 7BJ	
Project:		VTA22-01	

Wind-Load Parameter Recalculate

Vref [m...	22	Zref [m]	20
Z^	0.40	Cw	0.30
rf	1.00	gf	1.00
Topology correction		d [kg/m³]	1.20

Cut / Prune

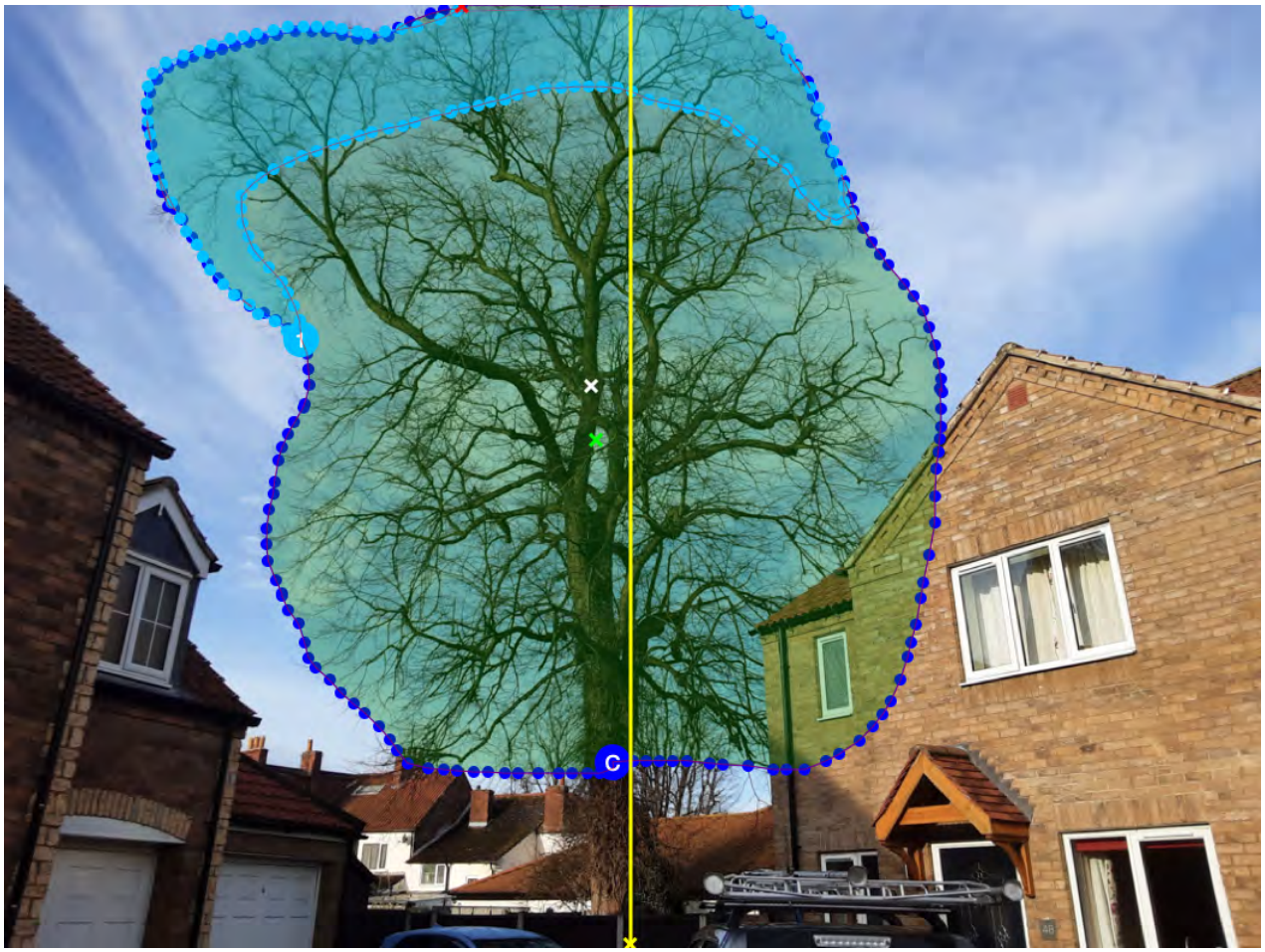
1: B-32%/T-57% 2 3

Wind-Load Estimation	Full	-C	
Crown area	155	-17%	[m²]
Height crown center	10.2	-10%	[m]
Height force center	11.4	-11%	[m]
Wind force	8	-24%	kN
Stem base bending moment	88	-32%	kNm
Stem base torsion moment	10	-57%	kNm

Safety: Assumptions and evaluation

Maximum relative loss in load-carrying capacity	5%
Wind load reduction due to height difference	54%
Maturity correction	---
Relative safety level:	+25% >> ~ 125%

Reduction of 5 meters in height reduces wind load experienced at the white X by 54% for constant wind speed of 22m/s (50mph).
The light blue area represents the material to be removed (better image below) by crown reduction.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C