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Arboricultural Impact Assessment:
1 Ashleigh Villas
East Boldon
South Tyneside
NE36 0LA

Prepared for:
Gary Craig Architectural Services Ltd
10 Fulmar Walk
Sunderland
Tyne & Wear
SR6 7BW

Report ref: GCAS_1Ashleigh_AIA1.1

Report prepared by	Position	Date
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Appendix 1 – Tree protection plan.

1.0 EXECUTIVE SUMMARY

1.1 Dendra Consulting Ltd was commissioned to undertake this impact assessment by Gary Craig Architectural Services. The report was prepared in order to support a planning application for the proposed extension to 1 Ashleigh Villas, East Boldon, Tyne & Wear.

1.2 The site survey was undertaken on 9th October 2019 by Liam Robson.

1.3 4 individual trees and 1 group were surveyed. These comprised a mixture of low and moderate value features. No trees require removal for development.

1.4 Impacts are predicted from the following activities:

- Foundations to be excavated within RPA of trees to be retained.
- Site traffic within RPA of trees to be retained.
- General construction works in proximity to trees being retained.

1.5 Mitigation has been recommended as follows:

- Sensitive foundation design.
- Ground protection measures to be installed.
- Protective fencing to be installed.

1.6 Overall, the proposals are likely to have a neutral impact. A detailed summary table of the impacts before and after mitigation is provided in section 6.0.

2.0 INTRODUCTION

2.1 Background & Scope

2.1.1 Dendra Consulting Ltd was commissioned to undertake this survey and report by Gary Craig Architectural Services. The scope of the contract was to undertake an arboricultural impact assessment to support a planning application for a proposed extension to 1 Ashleigh Villas, East Boldon, Tyne & Wear. The survey and assessment was carried out in line with BS 5837 – Trees in Relation to Design, Demolition and Construction- Recommendations, 2012 (BSI 2012).

2.1.2 It is proposed to extend the existing dwelling which will affect the north and west elevations of the property. A single storey outbuilding at the north end of the site will also be demolished.

2.2 Personnel, Timing & weather conditions

2.2.1 The site visit was undertaken on 9th October 2019 by Liam Robson. The weather was cool and dry with no significant visibility constraints.

2.3 Survey methodology

2.3.1 All observations were from ground level. Height was measured, where possible, using a clinometer and is expressed in metres. Crown spread is also expressed in metres. In dense tree cover height and crown spread may have been estimated. Stem Diameter at 1.5 metres was measured using calibrated DBH tape and is expressed in millimetres.

2.3.2 A tree quality assessment is made for each tree or group of trees as recommended in BS 5837. A cascade chart based on the standard is provided as figure 1.

Figure 1 – Chart for tree quality assessment. Adapted from BS 5837.

Category	Criteria		
Category U **Trees unsuitable for retention.** Trees in such a condition that they cannot be realistically retained for longer than 10 years	• Dead, dying or dangerous trees • Trees with serious structural defects • Trees with serious physiological defects		
	1. Mainly arboricultural values	**2. Mainly landscape values**	**3. Mainly cultural & conservation values**
Category A **Tree of high quality** with an estimated remaining life expectancy of at least 40 years.	Trees that are particularly good examples of their species. Particularly of rare or unusual species. Trees forming essential parts of a group	Trees, groups or woodlands of particular visual importance.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value.
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years.	Trees that might be categorised in the higher category but are downgraded because of impaired condition.	Trees present in numbers such that they attract a higher collective rating than they would as individuals.	Trees with material conservation or other cultural value.
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 15cms.	Trees not qualifying in higher categories	Trees present in groups or woodlands that do not possess significant landscape values.	Trees with no material conservation or cultural value

2.4 Root protection

2.4.1 The Root Protection Area (RPA) is represented by an area in m^2 around a tree which acts as a protective zone. In our schedule of trees it is expressed both as the RPA and as the Root Protection Radius (RPR). The RPR is a figure given in metres used to identify the radius of a circle around a tree which serves to act as the RPA. In certain circumstances the shape of the RPA may be altered to suit site specific factors such as the presence of buildings, roads, other trees etc.

3.0 REPORT FINDINGS

3.1 Survey summary

3.1.1 4 individual trees and 1 group of trees were surveyed. The full results of the survey are provided in section 8.0. The trees were examined for physiological and structural defects. Remedial works for such defects have been provided where appropriate, and this has been recommended regardless of development. **Please note that some of this work may be superseded by recommendations required for development purposes.** The results of the tree quality assessment are summarised in figure 2 below.

Figure 2 – Summary of tree quality assessment

Category	Tree/Group numbers
High	None
Moderate	T1, T2, T3
Low	T4, G1
Unsuitable for retention	None

3.2 Limitations

3.2.1 The inspection of T2 was limited due to the presence of ivy on the stem. It is recommended that the ivy is severed and the tree re-inspected within 12 months of the date of this report.

3.2.2 Due to the fact that trees are living organisms, and their general health and condition will change over time, the information presented within this report is valid for a period of two years.

4.0 IMPACT ASSESSMENT

4.1 Assessment process

4.1.1 This section of the report identifies and evaluates impacts in the absence of any mitigation. Mitigation is then detailed in section 5.0 of the report. Impacts are categorised into pre-development, development stage and post-development phases.

4.2 Pre-development impacts

4.2.1 The proposals do not require the removal of any trees to facilitate the development.

4.2.2 The pruning of T2 and G1 will be required. T2 will require crown lifting above the proposed footprint of the building and above the existing outbuilding to facilitate the demolition. Given the proximity of the tree to the proposed extension, these pruning works will affect a large amount of the eastern canopy. Canopies overhanging onto the site from trees in G1 will be pruned back to the site boundary. All of these works should be undertaken by a suitably qualified and competent arborist.

4.3 Development stage impacts

4.3.1 The proposed extension breaches the RPA of T2 and, to a lesser extent, G1. At present, the ground levels differ between the location of the trees and the garden to the rear of the property, separated by a large retaining wall. It is possible that given the necessary wall foundation, no tree roots will be located within the garden area. Prior to root investigation, however, it must be assumed that roots are present, and standard construction works for the proposed extension would result in severe root damage leading to the likely decline and possible death of T2 and G1.

4.3.2 During the construction stage site traffic, both vehicular and pedestrian, will be moving constantly over the RPA of T2. This is likely to cause compaction of the rooting environment leading to the subsequent decline of the tree.

4.3.3 Generic development works on the site, such as operation of machinery, storage of materials, etc, could result in damage to the crowns, stems and root systems of trees to be retained. This could result in the decline and death of the trees in the years post development.

4.4 Post development impacts

4.4.1 Potential post development tree/resident conflicts such as encroachment, shading, leaf fall, honeydew, etc usually arise from the erection of residential properties close to large trees. Such problems are subjective and depend entirely on different attitudes to trees. Consequently the impacts are difficult to predict with any degree of accuracy. In this instance, given the proximity of the extension to the large mature trees to the west, the proposals do have the potential for such impacts. However, the proposals do not present a significant change between tree and building given the existing property is already subject to the same potential impacts.

5.0 MITIGATION

5.1 Pre development impacts

5.1.1 No mitigation required. No trees are to be removed.

5.2 Development stage impacts

5.2.1 Prior to the commencement of any works, site investigation should be undertaken to ascertain if any tree roots are present within the proposed working area. If no roots are found, there will be no restrictions to the foundations for the extension. If roots are found, the proposed extension will require a sensitive methodology. The exact specification will be designed by a structural engineer who will be able to provide the best solution for the construction design, whilst being sensitive within the RPA (hatched red on the tree protection plan). As such, the methods below are recommendations only, as stated in BS5837:

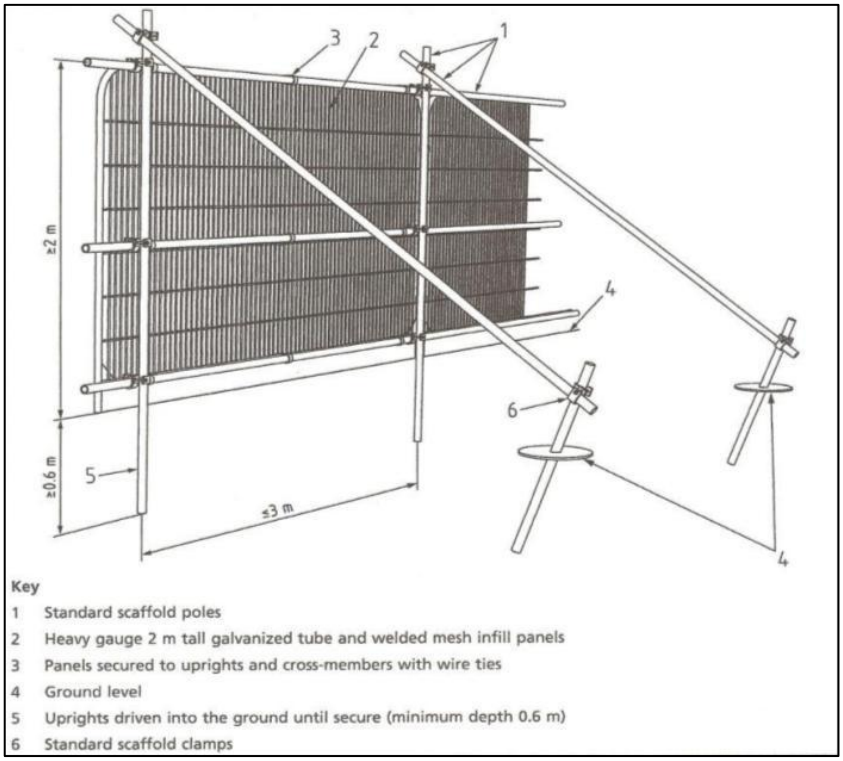
- Piled foundations with a site investigation used to determine their optimal location in relation to tree roots.
- Beams laid at or above ground level and cantilevered as necessary to avoid tree roots.

5.2.2 The requirement for ground protection measures will also be determined by the root investigation results. If roots are found, mitigation for the likely compaction caused by vehicular and pedestrian movement on site will be required. Ground protection measures will be put into place prior to commencement of works. The protection will consist of scaffold boards overlying a compressible later, such as 150mm of woodchips or gravel, which in turn overlies a geotextile membrane. This area is hatched blue on the tree protection plan.

5.2.3 Protective fencing of the type specified in figures 3 or 4 below will be installed as shown on the tree protection plan. The fencing will be erected after all the pre-development tree works have been completed but prior to

the start of construction. Signs will be attached to the fencing to state that it is a protected area and that it should not be moved.

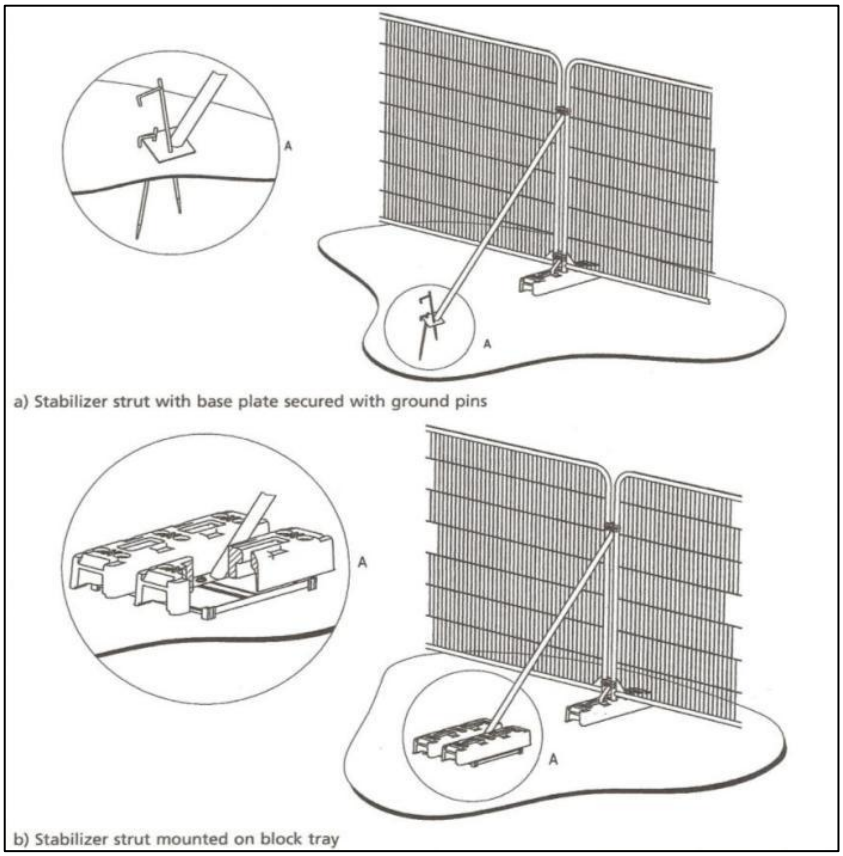
Figure 3 – Default protective fencing for trees on development sites.



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 4 – Alternative protective fencing for trees on development sites.



[Figures 3 & 4 reproduced with the permission of the British Standards Institute].

6.0 SUMMARY OF IMPACTS AND MITIGATION

6.1 The impacts and mitigation criteria shown in figure 5 below have been used to assess the impacts of the proposed development, which is summarised in figure 6.

Figure 5 – Impact assessment parameters and predictions

Assessment parameters	Measure of impacts
Nature and Magnitude of impact	Major negative Negative Minor negative Neutral / Negligible Minor positive Positive Major Positive
Extent of impact	Site level Street level Local level District level County level National level
Probability that impact will occur	Certain / Highly likely Likely Possible Extremely unlikely

Figure 6 – Site impacts before and after mitigation.

Proposed activity	Predicted impact without mitigation	Assessment of impact without mitigation	Proposed Mitigation	Assessment of impact with mitigation
Foundations for proposed extension within RPA of tree and group to be retained	Damage to roots of low and moderate value trees. Decline and death of trees post development	Negative Street level Highly likely	Root investigation Sensitive foundation design **(if required)**	Neutral Likely
Site traffic within RPA of trees to be retained	Damage to roots of moderate value tree. Decline and death of trees post development	Negative Street level Highly likely	Root investigation Ground protection measures to be installed **(if required)**	Neutral Highly likely
General construction works in proximity to trees being retained	Damage to stems, branches and roots of tree being retained. Possible decline of trees	Negative Street level Highly likely	Protective fencing to be erected	Neutral Highly likely

7.0 REFERENCES

BSI (2012) *BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.* British Standards Institution. London.

8.0 SCHEDULE OF TREES

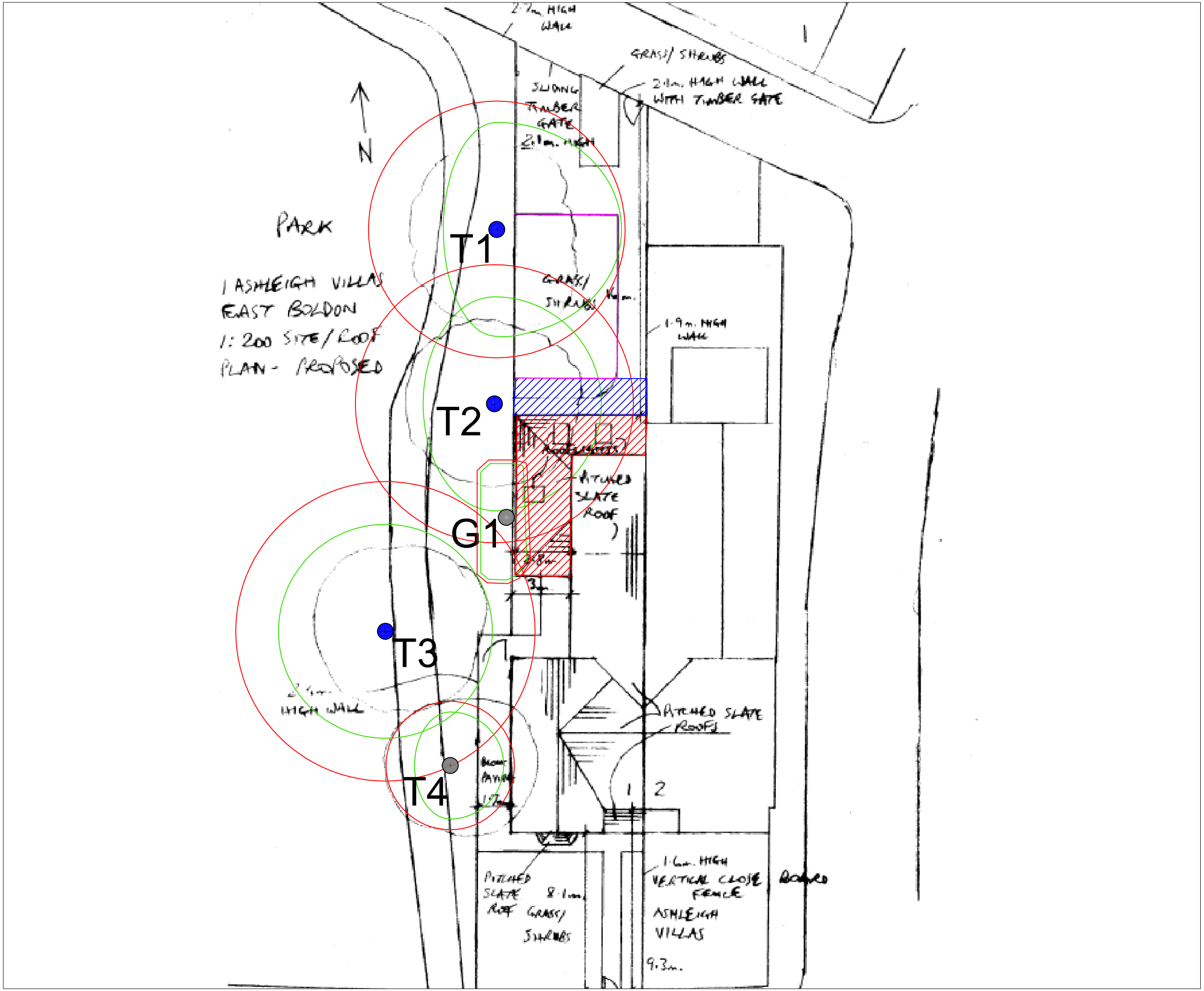
KEY

NR: Not recorded
Age: Y = Young, SM = Semi mature, EM = Early mature, M = Mature, OM = Over mature
Estimated Remaining Contribution: Expressed in years
Recommendations for health and safety reasons are not highlighted. Recommendations for development purposes are highlighted in RED

No.	Species	Height (m)	Stem diam. (mm)	Crown Spread (m)				Height of main canopy (m)	Height of first significant branch (m)	Direction of first significant branch	Age class	Estimated remaining contribution	Comments	Recommendations	Tree quality Assessment	RPA (m^2)	RPR (m)
				N	E	S	W										
T1	Sycamore	16.0	600	6.0	7.0	6.0	3.0	4.0	NR	NR	M	40+	Asymmetric crown	No action required at the present time	B1	163	7.2
T2	Sycamore	16.0	650	6.0	6.0	6.0	4.0	3.0	NR	NR	M	40+	Ivy on stem. Inspection limited. Deadwood in crown	Sever ivy. Re-inspect in one year. Remove deadwood	B1	191	7.8
T3	Sycamore	20.0	700	6.0	6.0	6.0	6.0	4.0	NR	NR	M	40+	Deadwood in lower crown. Minor bark damage	No action required at the present time	B1	222	8.4
T4	Holly	12.0	300	3.0	3.0	3.0	2.0	2.5	NR	NR	M	40+	Minor bark damage	No action required at the present time	C1	41	3.6

No.	Species	Height (m)	Stem diam. (mm)	Crown Spread (m) N	E	S	W	Height of main canopy (m)	Height of first significant branch (m)	Direction of first significant branch	Age class	Estimated remaining contribution	Comments	Recommendations	Tree quality Assessment	RPA (m^2)	RPR (m)
G1	Mixed	6.0	100	NR	NR	NR	NR	0.1	NR	NR	SM	20+	No major defects	No action required at the present time	C2	5	1.2

REPORT END



Appendix 1

Tree Protection Plan

KEY

Tree retention category

- Category A
- Category B
- Category C
- Category U

Tree Constraints

- Crown Spread
- Root Protection Area

Tree Protection

- Sensitive foundation design (if required)
- Ground protection measures
- Protective fencing

Scale: 1:200 @ A3

The original of this plan was produced in colour - a monochrome copy should not be relied upon

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