

## **BENNETTS FARMHOUSE, PADBURY**

### **TREE SURVEY REPORT and ARBORICULTURAL IMPACT ASSESSMENT**

In accordance with BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'

**Prepared for John Thornton**

**by**

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# 1 INTRODUCTION

## 1.1 Background

1.1.1 This report describes the results of a Tree Survey and Arboricultural Impact Assessment undertaken in accordance with BS5837:2012 in relation to the proposed garage in the rear garden of Bennetts Farmhouse which is located on Main Street in Padbury, hereinafter referred to as 'Bennetts Farmhouse' and 'the site'. The extent of the survey area is shown in the Tree Constraints Plan in *Appendix A*. The study was undertaken by Ben Woodford (ABC Level 4 Diploma Arb) of Hankinson Duckett Associates (HDA) and commissioned by John Thorton in December 2022.

## 1.2 Scope and purpose of report

1.2.1 The report is intended to inform the planning process in accordance with the guidelines set out in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations' (BSI, 2012). This standard provides recommendations and guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees, including larger shrubs and hedgerows, with structures.

*'This British Standard gives recommendations and guidance on the relationship between trees and design, demolition and construction processes. It sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures. The standard is applicable whether or not planning permission is required.'* (BSI, 2012)

1.2.2 The guidance recommends a three-stage approach incorporating: (i) initial tree survey and report; (ii) Arboricultural Impact Assessment (AIA) and (iii) Arboricultural Method Statement (AMS), which details the specific tree protection measures to be adopted in relation to construction activity across the site, and in particular in the vicinity of retained trees. This report fulfils the first two stages in this process. The third stage, AMS is recommended to be dealt with through discharge of future planning conditions.

## 1.3 Aims

1.3.1 Specifically, the aims of the study are:

- To conduct a ground-based visual survey of trees within or adjacent to the proposed development, along with any trees situated on adjacent third-party land that have the potential to be impacted upon by the proposals;
- To record the nature, extent and condition of the existing tree cover, and assign a retention category to each tree or group of trees, in accordance with BS5837:2012;
- To compile the survey results in a Tree Data Schedule (*Appendix B*) and produce an accompanying Tree Constraints Plan (*Appendix A*) which provides information on the retention category, crown spread, Root Protection Area (RPA) and location of each tree or group of trees; AND
- To assess the implications of the proposals in relation to existing trees.

## **1.4 Date of survey**

1.4.1 The tree survey was carried out from ground-level by Ben Woodford (ABC Level 4 Diploma Arb) in January 2023.

## **2 METHODOLOGY**

### **2.1 Information recorded**

2.1.1 All trees potentially affected by the proposed works were surveyed from ground-level using the *Visual Tree Assessment* (VTA) technique developed by Mattheck and Broeler (1994).

2.1.2 The site was subject to a full BS5837 Tree Survey, subject to the limitations set out in *Section 2.3*, in order to provide a sufficient level of information to inform the design. For those trees surveyed in accordance with BS5837:2012, the following data was gathered for each tree surveyed:

- Tree, group or hedge number (sequentially and separately for trees, groups, hedges and stumps)
- Tree species (English names follow Stace [2010] for higher plants)
- Life stage (expressed within a defined 'age-class' category)
- Tree height (in metres)
- Stem diameter (measured at 1.5m above uppermost ground-level)
- Observations on tree position, form, condition, and comments on any significant defects
- Recommendations for arboricultural works
- The physiological and structural condition of the tree(s)
- Estimated Remaining Contribution expressed within defined categories
- BS5837 retention category

2.1.3 Category definitions in relation to the above are described fully in *Appendix C*.

### **2.2 Observed tree defects and recommendations**

2.2.1 If appropriate and with due regard to the methodologies outlined in *Section 2.1* above and limitations of this survey outlined in *Section 2.3.1* below, recommendations have been provided on arboricultural works which should be undertaken in the interests of safety or as part of sound management practice.

2.2.2 It should be noted that any recommendations for tree works identified within the Tree Data Schedule are provided in accordance with the guidance set out in BS5837:2012, and not in connection with the proposals. Under the Occupiers Liability Act (1957 and 1984), responsibility for ensuring the safety of individual trees in relation to the statutory 'duty of care' rests with the relevant owner/occupier.

## **2.3 Limitations**

- 2.3.1 This survey and the results contained within this report represent a preliminary assessment from ground-level. Observations have been made for the purposes of assessment in terms relevant to planning and development, and not tree safety. No climbed inspections or invasive or non-invasive decay detection devices have been used to assess tree condition. As such, the survey conducted and results presented should not be used as a tree safety evaluation, which would require a *Tree Safety Survey*, designed to provide a more detailed appraisal of the risk and liability associated with specific individual trees or groups of trees.
- 2.3.2 Whilst efforts have been made to detect significant defects within inspected trees, no guarantee can be given as to the safety or otherwise of surveyed trees. Climatic conditions including storms, droughts, and temperature changes can and do cause failure in apparently healthy trees. In addition to these restrictions on access and the presence of dense undergrowth, ivy and other climbing plants can obscure defects from view. It should also be noted that the presence of tree pests and diseases can be affected by the time of year and climatic conditions.
- 2.3.3 All tree observations, and any recommendations, are based upon the site conditions, levels and patterns of usage observed at the time of survey only. Alterations in these factors will affect any evaluations made and would require a re-assessment of both the trees and site.
- 2.3.4 The location of the surveyed trees is taken from the Garage Ground Floor Plan provided by the client and is shown on the Tree Constraints Plan in *Appendix A*.
- 2.3.5 A TPO and Conservation Area search were carried out as part of this report. Other legal restrictions relating to existing trees on the site such as historic planning conditions, restrictive covenants and lease clauses were not investigated. Before any recommended tree work is undertaken it should be ensured that all legal obligations are fully met.
- 2.3.6 No trees within the site have been recorded as veteran or ancient on the Ancient Tree Inventory (Woodland Trust/Ancient Tree Forum).

## **3 LOCATION AND DESCRIPTION OF SURVEY AREA**

### **3.1 Location**

- 3.1.1 The site is located off Main Street, Padbury. The approximate grid reference for the centre of the site is SP 71686 30385.

### **3.2 Description of survey area**

3.2.1 The survey area is shown on the Tree Constraints Plan provided in *Appendix A*. The area comprises of a rear garden in which the trees and hedge are situated on or near to the boundaries.

### **3.3 Topography**

3.3.1 The topography across the site is a gradual fall north north-west to south south-east with no sudden changes in ground levels.

### **3.4 Soils**

3.4.1 The geological data identifies the soil as slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.

## **4 TREE SURVEY RESULTS**

### **4.1 Trees within survey area**

4.1.1 The surveyed trees comprise of mature Silver birch and Lime.

4.1.2 The hedgerow is a *Leylandii* hedge that is regularly maintained.

4.1.3 Tree locations are shown on the Tree Constraints Plan provided in *Appendix A* and a description of all the surveyed trees is given in the Tree Data Schedule provided in *Appendix B*.

### **4.2 Tree quality assessment**

4.2.1 Surveyed trees and tree groups have been graded in accordance with the retention categories described in BS5837:2012. *Table 1* provides an at-a-glance overview of the quality of tree cover within and adjacent to the site, with reference to BS5837 Retention Categories. An explanation of these categories is provided below:

- Category A: Trees of high quality, in such a condition as to make a substantial contribution. Retention is highly desirable.
- Category B: Trees of moderate quality, in such a condition as to make a significant contribution. Retention is desirable.
- Category C: Trees of low quality, currently in adequate condition to remain until new planting is established, or young trees with a stem diameter below 150mm.
- Category U: Trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

4.2.2 No trees were classified within Retention Category A.

4.2.3 Four trees and one hedgerow in the survey were classified within Retention Category B. Where possible, Category B trees should be retained and managed to improve their future value.

4.2.4 No trees, groups or hedgerows were classified as Category C.

4.2.5 No trees, groups or hedgerows were classified as Category U.

**Table 1:** Number of surveyed features in each retention category\*

Retention Category	Description	Number
A	Trees of high quality and value, in such a condition as to make a substantial contribution. Retention is highly desirable.	0
B	Trees of moderate quality and value, in such a condition as to make a significant contribution. Retention is desirable.	5
C	Trees of low quality and value, in adequate condition to remain until new planting is established, or young trees.	0
U	Trees which cannot realistically be retained for longer than 10 years.	0
<b>Total</b>		<b>5</b>

\* Hedgerows are counted as one feature.

4.2.6 The Tree Data Schedule (*Appendix B*) provides further details of all the surveyed trees and hedgerows.

### 4.3 Tree condition assessment and summary

4.3.1 The trees have received previous pruning including crown lifting and reductions. The hedgerow (H1) has been regularly maintained on both the sides and top.

4.3.2 The Silver birch (T1) has an exposed basal cavity.

### 4.4 Tree protection status

4.4.1 A check on the Buckinghamshire County Council interactive map on 3<sup>rd</sup> April 2023 showed that the site does not have any Tree Preservation Orders however the site and trees adjacent to the site are within a Conservation Area.

## **5 ARBORICULTURAL IMPACT ASSESSMENT**

### **5.1 Overview of the proposals**

5.1.1 The proposals for the site are described as:

*The erection of a detached single-story garage and garden store.*

5.1.2 This Arboricultural Impact Assessment assesses the likely effects of the proposals based on the Pro Garage GF Plan (Drawing no.S2 P 05A) prepared by John Thornton.

### **5.2 Implications of tree removal**

5.2.1 One Category B tree (T1) would be removed to facilitate the proposed layout. It should be noted that this tree has a basal cavity and is in close proximity to the existing dwelling and it has a limited safe useful life expectancy.

5.2.2 One Category B hedge (H1) would be removed to facilitate the proposed layout. The hedge comprises of Leyland Cypress which is frequently planted in residential areas and has limited ecological value. It is proposed to replace the hedge with one comprising of native species which will be of higher ecological value once it has become established.

5.2.3 The extent of tree removal required is identified on the Tree Retention and Removal Plan provided in *Appendix D*.

### **5.3 Implications of tree pruning**

5.3.1 Some minor pruning works may be necessary to the Silver birch (T2) to provide adequate clearance from the proposed garage.

### **5.4 Implications of ground level changes**

5.4.1 No changes in ground level in relation to the RPA of retained trees are anticipated. Should any unavoidable ground level changes within the RPA of a retained tree be identified suitable mitigation and/or working practices should be incorporated into an Arboricultural Method Statement to demonstrate that the tree retention can be practically achieved.

### **5.5 Implications of changes to ground surfacing**

5.5.1 No details of any other changes in ground surfacing in relation to the RPA of retained trees are known of at this stage however the extent of any encroachment into the RPA of any retained tree is likely to be minimal and significantly less than the 20% referred to in the design recommendations within BS5837:2012 (para 7.4.2.3). In addition to this the use of a suitable “no-dig” construction such as CellWeb and a permeable surface would minimize the effect of any new hard surfacing within the RPA of retained trees.



## **5.6 Implications of underground services and drainage**

5.6.1 In order to avoid impacts on existing trees, all new services required in connection with the proposed development should be located outside the RPA of any retained tree. If essential service provision intrudes on the RPA of any retained tree, all works should be conducted in accordance with the *NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees* (NJUG, 2007), details of which would be finalised in the technical design stage and, where necessary, covered by an Arboricultural Method Statement.

## **5.7 Implications of over ground services**

5.7.1 Any new over ground services required in connection with the proposed development should be located outside and a suitable distance away from the canopies of retained trees. Where new planting is to be established, consideration should be given to providing adequate clearance from over ground services to allow for future growth without the need for regular pruning.

## **5.8 Boundary fencing**

5.8.1 No changes to the boundary fencing have been shown and it is recommended if any are required that the siting and a design that minimizes the effect on retained trees is adopted, details of which should be agreed in the technical design stage and where necessary covered by an Arboricultural Method Statement.

## **5.9 New planting**

5.9.1 The Leyland Cypress hedge is to be replaced with a mixed native hedgerow. The following species would be suitable for the replacement hedgerow: Beech (*Fagus sylvatica*), Blackthorn (*Prunus spinosa*), Hawthorn (*Crataegus monogyna*), Field maple (*Acer campestre*), Hawthorn (*Crataegus monogyna*), Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*), Hornbeam (*Carpinus betulus*) and Yew (*Taxus baccata*).

5.9.2 No replacement tree planting has been proposed as the retained trees mean there is no room to plant any trees that would have the potential to reach a size where they would contribute to the amenity value of the surrounding area.

5.9.3 Any new planting should avoid adversely affecting the health or competing with existing retained trees unless it is required to act as a successor to the existing vegetation.

## **5.10 Implications of construction activity**

5.10.1 The RPAs of all the retained trees and hedgerows should be protected by tree protection fencing and, where appropriate, ground protection. All temporary tree protection should be approved by the relevant planning authority prior to any works taking place. This

fencing would protect the construction exclusion zone (the rooting area of retained trees that is outside the footprint of the proposed development and working area required for its construction). Within the construction exclusion zone, the following rules should apply:

- No construction activity;
- No tree works without prior written consent from the Council;
- No excavation or alteration to ground levels or conditions (apart from those outlined for soft or hard landscape works and drainage works);
- No temporary structures;
- No storage of materials;
- No vehicles or machinery to be used or parked;
- No fixtures of any kind attached to trees; and
- No fires within 15m of the canopy edge of any tree or hedge.

5.10.2 An example of how the temporary tree protection for the development could be sited is shown on the preliminary Tree Protection Plan provided in *Appendix E*.

5.10.3 The design specification for the protective fencing should be in accordance with Figure 3a or 3b of BS5837:2012 as this will enable the fencing to be repositioned during the course of the construction works and ensure that the trees to be retained (and areas to be landscaped) are afforded the maximum protection throughout construction.

## **5.11 Hazardous materials**

5.11.1 All hazardous materials (including cement and petrochemicals) would need to be appropriately stored, and their usage controlled, to ensure no detrimental impact on tree health, both in terms of existing trees and areas proposed for new landscape planting.

**REFERENCES**

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## HDA Document Control and Quality Assurance Record

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Issue	Description	Date of Issue	Signed
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	Personnel	Position
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Approved for issue	Tanya Kirk	Director

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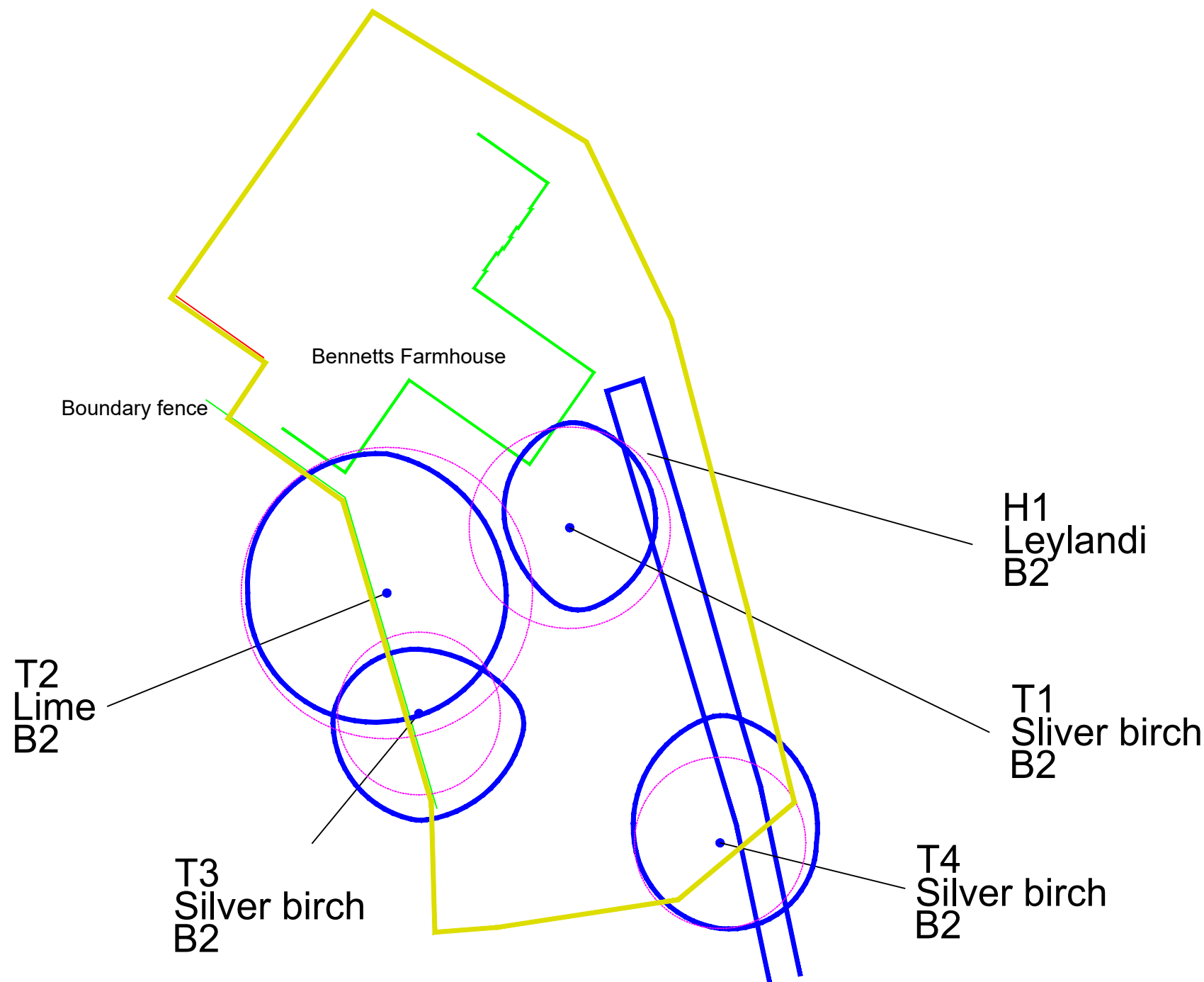
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**APPENDIX A**

**Tree Survey Constraints Plan**



### KEY

-  Area of survey
- T8** Tree (T) / Group (G) / Hedge (H) / Woodland (W) number
-  Root Protection Area
-  Tree canopies
- BS5837:2012 Tree Categories**
-  Canopy extent of tree: Category A - High quality
-  Canopy extent of tree: Category B - Moderate quality
-  Canopy extent of tree: Category C - Low quality
-  Canopy extent of tree: Category U - Unsuitable for retention

### Notes

A full qualitative analysis of tree cover (The Tree Data Schedule) accompanies this drawing.

Do not scale off drawing - refer to Tree Data Schedule for accurate crown spread measurements.

Depictions of tree canopies are based on measurements taken to four cardinal compass points.

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

Ecological value must be checked as retention may still be appropriate / necessary.

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CLIENT:  
c/o John Thornton

PROJECT:  
Bennetts Farmhouse

TITLE:  
Tree Constraints Plan

SCALE AT A3:  
1:250

DATE:  
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1:250



**APPENDIX B**

**Tree Data Schedule**

Reference	Life Stage & Species	Height (m)	Crown Ht (m)	FSB Ht (m)	Stem Diameter (mm)	Branch Spread			Observations	Preliminary management recommendations	Physio Cond	Life Expectancy	BS5837 Ret. Cat.
				Dir		W	N (m)	E			S		
T1	M <b>Silver birch</b> <i>Betula pendula</i>	16	1.8	2	390	3	5	4	Basal cavity, swelling at base, twin leader with co-dominant formation at the fork, trunk wounds from previous crown lifting, historic pruning of crown and top height reduction at 10m	Further investigation and assessment of basal cavity due to the proximity of targets	Good	20+	B2
				S			4				Fair		
T2	M <b>Lime</b> <i>Tilia x europaea</i>	12	1.5	1	430	6.5	6.5	6	Twin stemmed, ivy at the base, poor pruning of lower branches, historic heavy reduction top height reduced to 9m, bird nest, rope swing on lower branch	No immediate action required	Good	40+	B2
				NW	370		6				Fair		
T3	M <b>Silver birch</b> <i>Betula pendula</i>	13	0.5	1.5	320	4	3	5	Trunk wounds, historic crown lift, historic reduction and top height reduced to 11m, poor pruning leader top cut, next to T2 and merging canopies	No immediate action required	Good	40+	B2
				W			5				Fair		
T4	M <b>Silver birch</b> <i>Betula pendula</i>	12	1.5	2	330	4	6	4.5	Ivy at base, historic crown lifts, poor pruning wounds, historic reduction to sides and top at 10m, poor pruning leader top cut, next to wall, leaning (N)	No immediate action required	Good	40+	B2
				SW			4				Fair		
H1	EM <b>Leyland cypress</b> <i>x Cupressocyparis leyandii</i>	3	0	-	120	-	-	-	Regularly maintained on all sides and top	No immediate action required	Good	40+	B2
				-			-				Fair		



## **APPENDIX C**

### **Explanation of Terms**

## Reference Numbering

Each tree, group of trees or hedgerow is given an individual reference, made up of sequential numbers prefixed by a letter where:

**T** = Individual Tree, **G** = Group, **H** = Hedge, **S** = Stump, **R** = Reference, **X** = Shrub, **JK** = Japanese Knotweed

## Age and Species

### *Life Stage*

Trees are assigned to one of five age classes as follows:

<b>Young (Y)</b>	Tree in establishment stage, normally up to 5-10 years old
<b>Semi-mature (SM)</b>	Establishing tree with potential for significant growth both in terms of tree height and crown spread. Typically, having attained at least 25% of likely mature height and crown spread
<b>Early Mature (EM)</b>	Establishing tree with potential for significant growth both in terms of tree height and crown spread. Typically, having attained at least 50% of likely mature height and crown spread
<b>Mature (M)</b>	Established tree, typically having attained at least 70% of likely mature height and crown spread
<b>Over-mature (OM)</b>	Extensive decline in physiological functions and/or structural integrity
<b>Veteran (V)</b>	A tree that shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species.

### *Species*

Tree names and other plant names follow Stace (1997) and are provided as both Common (English) species names and scientific (Latin) names.

## Size and Spread

### *Height*

Current tree height in metres.

### *Stem Diameter*

Stem diameter, measured in millimetres, at 1.5m above ground-level. On multi-stemmed trees this measurement is taken using the guidance in Annex C of BS5837:2012.

### *Branch Spread*

Radial crown spread measured in four compass directions (north, south east, and west) using magnetic north.

### *First Significant Branch (FSB)*

Height of first significant branch above adjacent site ground-level in metres and direction of growth measured in one compass direction using magnetic north.

### *Crown Height*

Height of crown clearance above adjacent site ground-level in metres. Where this varies around the canopy, the height of the lowest point is recorded.

## Observations

This section provides details, where relevant, pertaining to the tree's position, form, pruning history and an account of any significant defects observed. Access restrictions and other incidental observations are also noted here.

## Recommendations

These are normally based upon remedial action to address any observed significant defects. These may be recommended for tree safety reasons, or for reasons of good arboricultural practice and tree management.

## Condition and Value

### *Physiological Condition*

<b>Good</b>	Healthy tree with no symptoms of significant disease
<b>Fair</b>	Tree with early signs of disease, small defects, decreased life expectancy, or evidence of less than average vigour for the species
<b>Poor</b>	Significant disease present, limited life expectancy, or with very low vigour for the species and evidence of physiological stress
<b>Dead/dying</b>	Tree is in advanced stages of physiological failure and is dying or dead

### *Structural Condition*

<b>Good</b>	No significant structural defects observed
<b>Fair</b>	Some structural defects observed, including the presence of deadwood in otherwise healthy trees with a good life expectancy
<b>Poor</b>	Significant structural defects observed resulting in a tree which is likely to require either monitoring or remedial action
<b>Dead/dying</b>	Major defects which compromise the safety of the tree. Remedial works or tree removal are likely to be required in many target locations

## Life Expectancy or Estimated Remaining Contribution (ERC)

The estimated number of years before the tree may require removal is expressed as one of the following categories: (i) <10 years; (ii) 10+ years; (iii) 20+ years; (iv) 40+ years.

## BS5837 Retention Category

Each tree, group of trees or hedge is assigned to a retention category where:

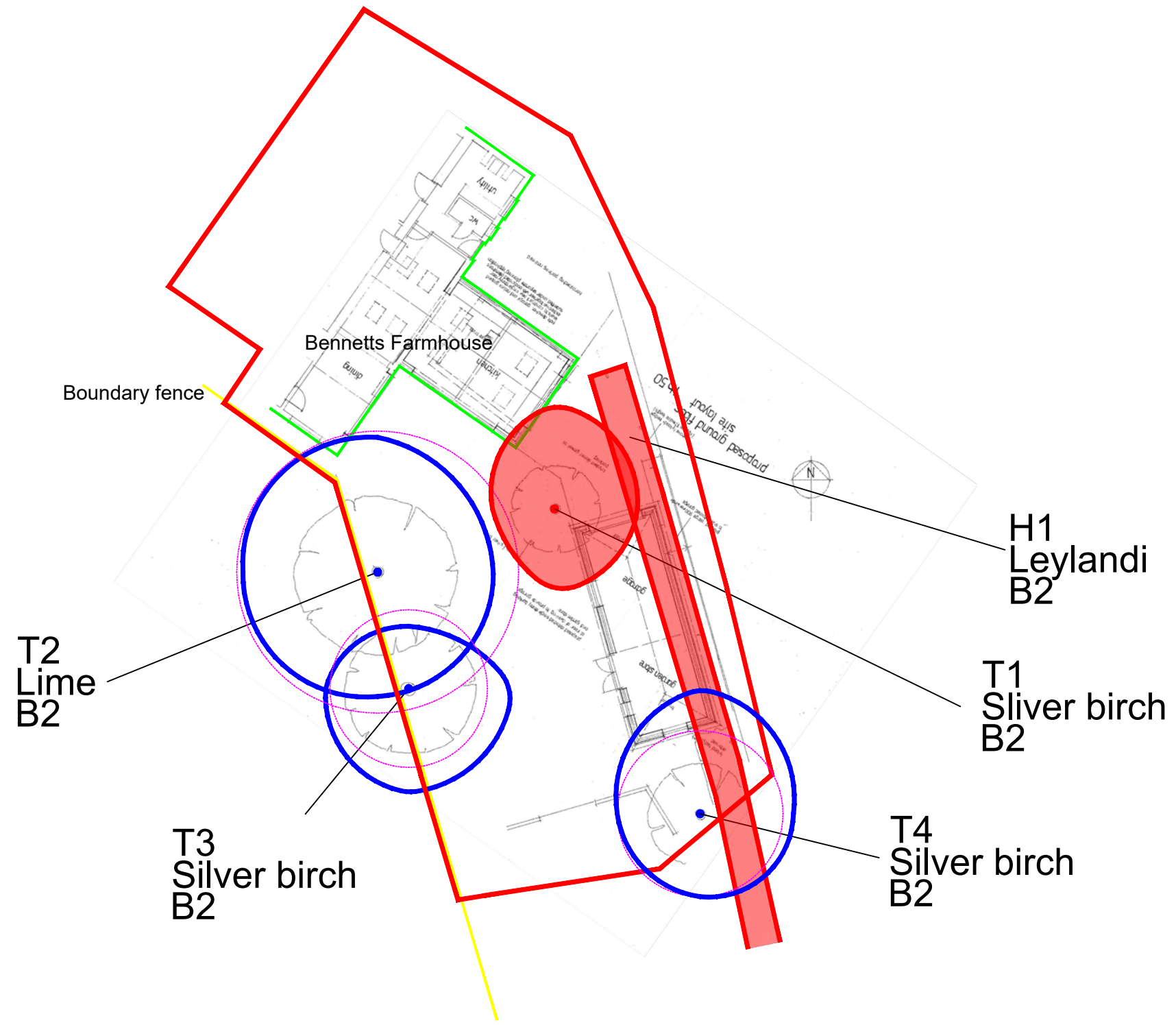
<b>A</b>	Trees of high quality, retention is highly desirable
<b>B</b>	Trees of moderate quality where retention is desirable
<b>C</b>	Trees of low quality, or young trees with a stem diameter <150mm. Category C trees may be retained, replaced or relocated
<b>U</b>	Trees unsuitable for retention or trees which should be removed

In accordance with BS5837:2012, a numerical suffix is added to the retention category of each tree, which indicates the principal reason for the value of each tree or group of trees, where:

<b>1</b>	Mainly arboricultural values, including fine examples of the species
<b>2</b>	Mainly landscape values, including trees providing screening and/or softening effects to the locality, or trees of visual prominence
<b>3</b>	Mainly cultural values, including conservation, historical and commemorative values

**APPENDIX D**

**Tree Retention & Removal Plan**



**KEY**

- T1 Tree (T) / Hedge (H) number
  - Root Protection Area
  - Tree canopies
  - To be removed
- BS5837:2012 Tree Categories
- Canopy extent of tree: Category A - High quality
  - Canopy extent of tree: Category B - Moderate quality
  - Canopy extent of tree: Category C - Low quality
  - Canopy extent of tree: Category U - Unsuitable for retention

**Notes**  
 A full qualitative analysis of tree cover (The Tree Data Schedule) accompanies this drawing.  
 Do not scale off drawing - refer to Tree Data Schedule for accurate crown spread measurements.  
 Depictions of tree canopies are based on measurements taken to four cardinal compass points.  
 The original of this drawing was produced in colour - a monochrome copy should not be relied upon.  
 Ecological value must be checked as retention may still be appropriate / necessary.  
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Tree Retention and Removal Plan

SCALE AT A3: 1:250      DATE: April 2023

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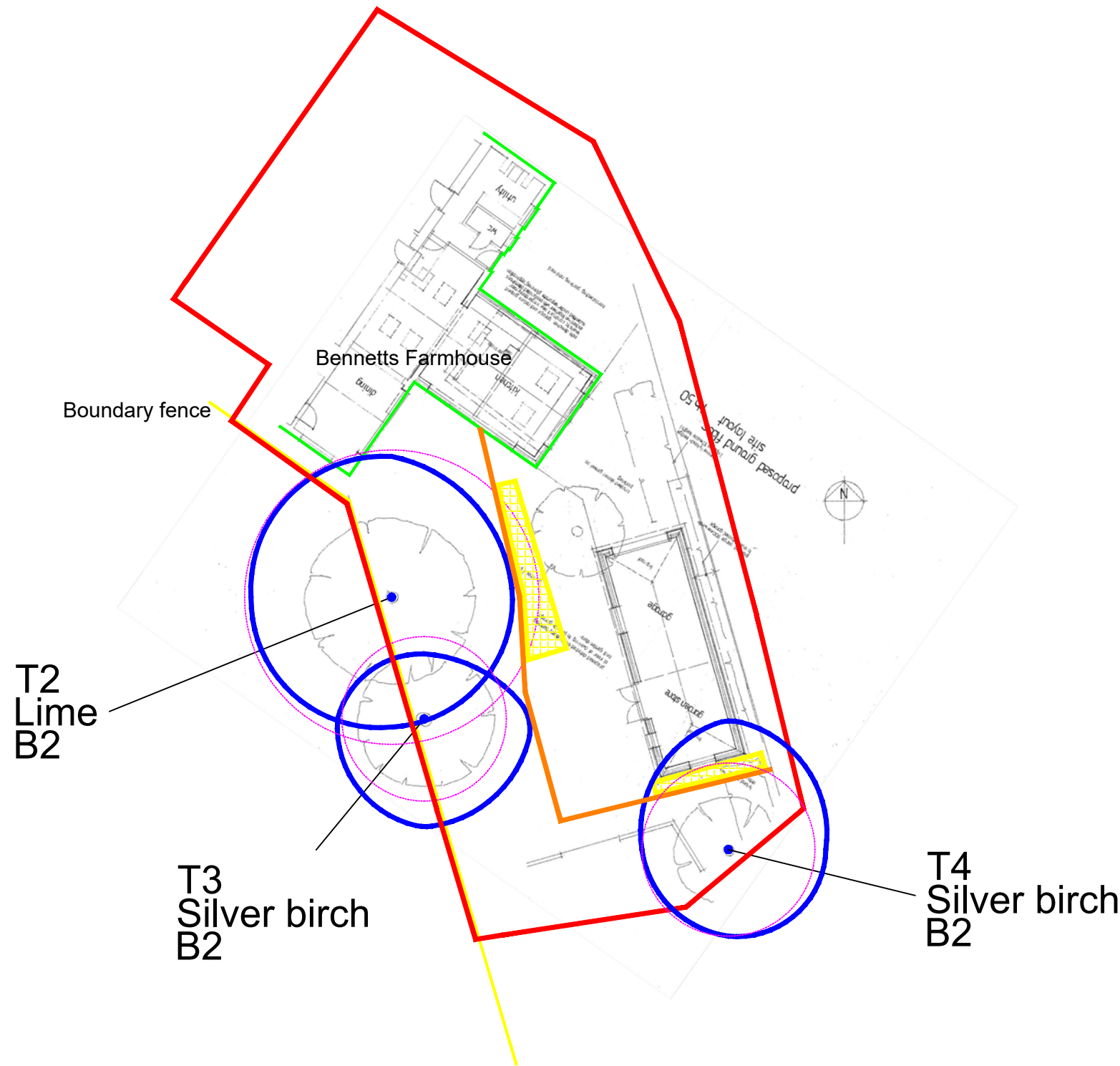
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Landscape Architecture Masterplanning Ecology **hda**

**APPENDIX E**

**Tree Protection Plan**



Boundary fence











Bennetts Farmhouse

T2  
Lime  
B2

T3  
Silver birch  
B2

T4  
Silver birch  
B2

### KEY

-  Site Boundary
  -  Tree (T) / Group (G) / Hedge (H) / Woodland (W) number
  -  Tree canopies
  -  Root Protection Boundary
  -  Tree Protection Fence
  -  Ground protection
- BS5837:2012 Tree Categories
-  Canopy extent of tree: Category A - High quality
  -  Canopy extent of tree: Category B - Moderate quality
  -  Canopy extent of tree: Category C - Low quality
  -  Canopy extent of tree: Category U - Unsuitable for retention

### Notes

Ecological value must be checked as retention may still be appropriate / necessary.

A full qualitative analysis of tree cover (The Tree Data Schedule) accompanies this drawing.

Do not scale off drawing - refer to Tree Data Schedule for accurate crown spread measurements.

Depictions of tree canopies are based on measurements taken to four cardinal compass points.

The original of this drawing was produced in colour – a monochrome copy should not be relied upon.

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CLIENT:  
c/o John Thornton

PROJECT:  
Bennetts Farmhouse

TITLE:  
Tree Protection Plan

SCALE AT A3: 1:250      DATE: April 2023

1099.1\_03



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