C.B.E. Consulting
Arboricultural Surveys to BS5837

BS5837:2012 Tree Survey
Land at The Cottage
Mill Lane
Normanton on Trent
Nottinghamshire
NGR SK78998 69036

Survey by
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BS5837 Tree Survey, Land at The Cottage, Normanton on Trent

Contents

Appendices

Figures

1. Introduction

1.1 Site Description and Location

The site surveyed comprises an area of residential garden land adjacent to Tuxford Road, situated at The Cottage, Mill Lane, Normanton on Trent, Nottinghamshire centred at NGR SK78998 69036. The location of the site is shown on the plan within **Figure 1** and an aerial photograph has been provided within **Figure 2** to place the site in context.

The site lies within Bassetlaw and is not within a designated Conservation Area. Telephone consultation with Bassetlaw District Council has not identified any Tree Preservation Orders associated with The Cottage but there are many trees protected by such order on the opposite side of Tuxford Road within the grounds of St Matthews Church and The Old Barn.

In order to facilitate an application to obtain permission to develop the area surveyed the Applicant has requested a BS5837 (2012) Tree Survey should be completed to assess the quality of the trees within and close to the boundary of the field and the impact any development may have on these. An inspection of the site was completed on 05th November 2021. A photographic record of the trees at the site is included within the report.

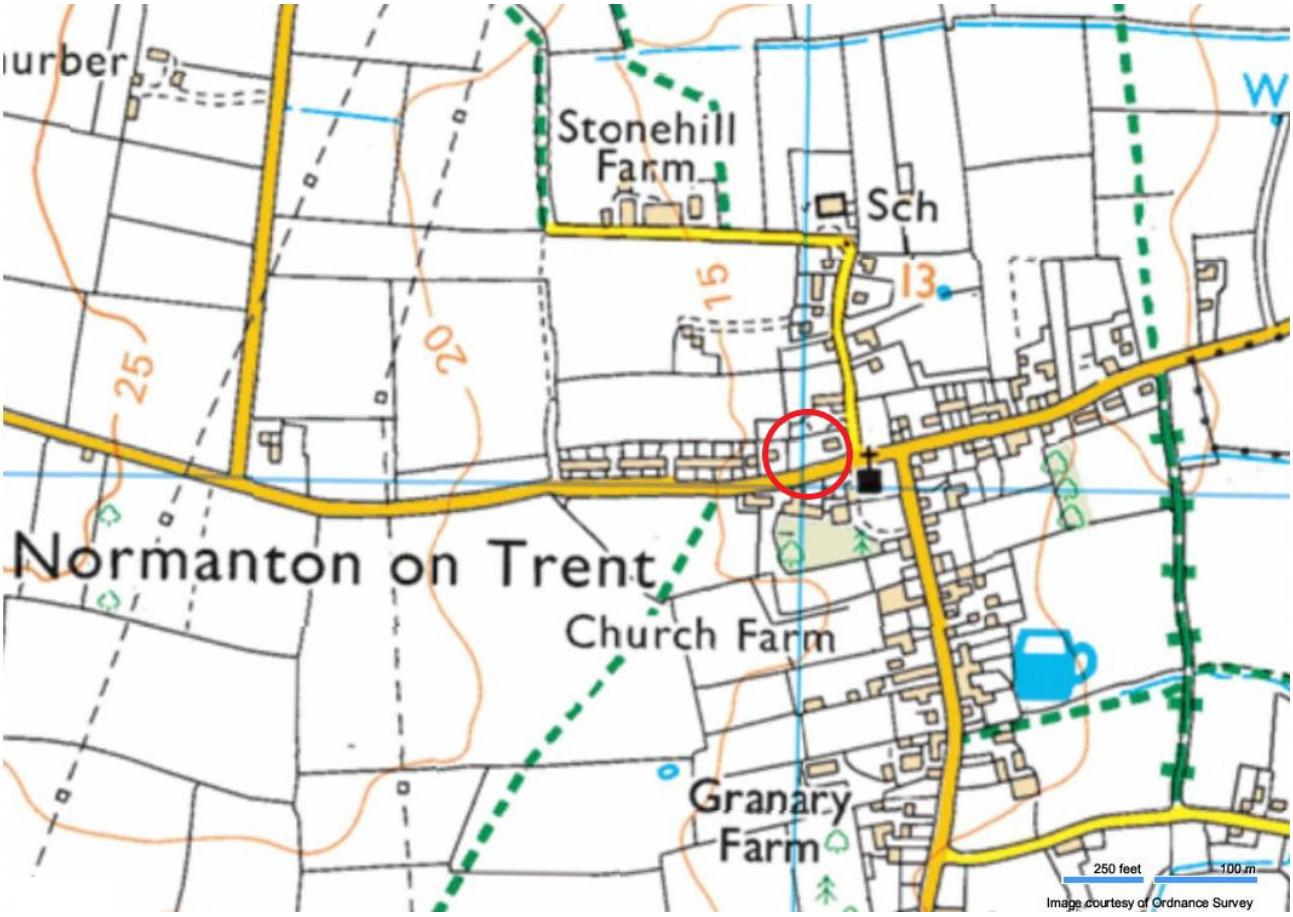


Figure 1: Site location.

1.2 Neighbouring Land Uses

The defined site area comprises part of a large residential garden at the junction of Mill Lane, and Tuxford Road in the centre of the village of Normanton on Trent. There are houses and gardens to the north and west and the Cottage lies to the east. Tuxford Road runs along the southern boundary of the garden and there is a church and residential housing on the opposite side of this. There is

open agricultural grazing land close by to the north-west. A contextual aerial photograph has been provided below at **Figure 2**.

Figure 2: Site Contextual Aerial Photograph Image copyright Microsoft Corporation 2021

In undertaking the tree survey the assessment has been carried out in accordance with the specifications contained within BS 5837 Trees in Relation to Design, Development and Construction (2012). An inspection of the site and the immediate surrounding areas was completed by Christopher Barker, dipHort, CEnv, an experienced arboricultural consultant and licensed bat worker.

2. Tree Survey Appraisal Methodology

2.1 Survey Objectives

This tree survey has been carried out with the objective of:

- Identifying the individual tree species present at the site by means of visual inspection;
- To define the approximate age, condition and canopy spread of all individual mature and semi-mature trees identified and the value of these within the development context;
- To identify any trees that present a risk to existing or proposed foundations or other structures that may be constructed on the site and recommend action to remove this risk; and
- Recommend tree management / mitigation measures where appropriate.

The survey broadly assessed the condition and arboricultural value of the trees lying in or adjacent to the site area, paying attention to any mature individual trees present within or adjacent to the site area in order to prepare an assessment in accordance with BS 5837 Trees in Relation to Design, Development and Construction (2012).

2.2 Survey Methodology

The methodology set out below is a summary of the suggested approach to tree assessment as described in British Standard 5837:2012.

Trees have been broadly assessed based on guidance set out within the British Standard BS 5837:2012 'Trees in Relation to Design, Development and Construction'. This standard provides recommendations and guidance on the principles to be applied to achieve successful integration of development with trees, shrubs and hedgerows.

Trees on the site have been divided into one of four categories (based on the cascade chart for tree quality assessment). These are classed as A, B, C or U (Section 4 of BS 5837) within the table in Appendix 1. This gives an indication as to the tree's importance in relation to the site, the local landscape and, also, the value and quality of the existing trees on site.

Category (A): Trees whose retention is most desirable and are of high quality and value. These trees are considered to be in such a condition as to be able to make a lasting contribution (a minimum of 40 years).

Category (B): Trees whose retention is considered desirable and are of moderate quality and value. These trees are considered to be in such a condition as to make a significant contribution (a minimum of 20 years).

Category (C): Trees that could be retained and are considered to be of low quality and value. These trees are in an adequate condition to remain until new planting could be established (a minimum of ten years) or are young trees with a stem diameter below 150 mm.

Category (U): Trees that are considered to have no significant landscape value but it is not presumed that there is any overriding need to remove these unless stated otherwise in the description and recommendations. These include any trees in such poor condition that they cannot be retained in the context of the current land use for more than 10 years. They are for this reason not considered as being significant within the planning process.

Species have been recorded by common and scientific name. Height has been estimated in metres and stem diameter measured in centimetres unless impractical, taken at a height of 1.5 m from the base of the tree.

The overall condition of any individual tree, or group of trees, has been referred to using one of the definitions listed below. A more detailed description of condition has been noted in the Tree Schedule.

G **Good:** A sound tree or trees needing little, if any, attention
F **Fair:** A tree or trees with minor but rectifiable defects or in the early stages of stress, from which it may recover
P **Poor:** A tree or trees with major structural and physiological defects or stressed such that it would be very expensive and inappropriate to retain
D **Dead:** A tree or trees no longer alive. However, this could also apply to those trees that are dying and will be unlikely to recover, or are becoming or have become dangerous

The survey was completed from ground level only. Aerial inspections were not undertaken. Evaluations of tree conditions given within this assessment apply to the date of survey and cannot be assumed to remain unchanged, and it may be necessary to review these within 24 months, in accordance with good arboricultural practice.

2.3 Site Plans & Tree schedules

The position of significant individual trees or groups of trees measured out on the site is shown on the Tree Location Plan **Figure 3**. Within the summary table (**Appendix 1**) a calculated corresponding radius of the circle for each RPA has been calculated. The Root Protection Areas are formulated to assist when designing layouts in relation to trees and the calculated RPAs in Appendix 1 should be used to inform the design layout of this site. At the time this survey was completed a conceptual development plan was available and this has been used to assess the potential impact of the proposed development within **Figure 4**. If this development plan changes ***a detailed Constraints Plan showing RPA's and protection areas will need to be prepared using the development plan as a base.***

3. Tree Survey Findings

3.1 Survey Details

The tree inspection took the form of a walkover inspection completed by Christopher Barker dipHort, CEnv. Each individual semi-mature or mature tree of significance that could be impacted by any proposed new development within the survey area was identified, visually inspected and classified. The character of the trees at the site is shown in photographs contained within this section.

3.2 Mature and Semi-Mature Trees

A total of nineteen individual trees have been identified and assessed as part of the tree survey. **Beech T1** is located along the southern boundary of the garden directly adjacent to Tuxford Road in a position of high visibility. This tree has a lifted crown which is trimmed on the north eastern side to avoid an overhead cable. This tree will need future trimming to maintain this cable and the canopy is likely to be seasonally trimmed to maintain a balanced round canopy. This tree has at least 20 years of useful life remaining and has been placed into Category B. In addition, there is a **Spruce T2** situated close to the road which is probably a former Christmas Tree planted out in the garden. This tree has 20 years or more of useful life remaining has been placed within Category B.

Beech T1

Spruce T2

The majority of the trees surveyed. Specifically **trees T3 – T12 and T16 – T18** are fruit trees of small stature and varied condition placed within Categories C and U.

T3 – T9

T11 and T12

T4 – T11

Fruit trees in garden centre

Trees T14 and T15 are both Cherry situated along or just outside of the eastern boundary of the garden area being considered for development. These are trees of reasonable stature visible from outside of the garden area and both trees are placed within Category B.

Cherry T14

Cherry T15

Ash T19 is situated in the garden to the west of the survey area. This tree has a raised crown which does extend across the boundary over the trimmed boundary hedgerow. This tree is of good quality and has been placed into Category B

Ash T19

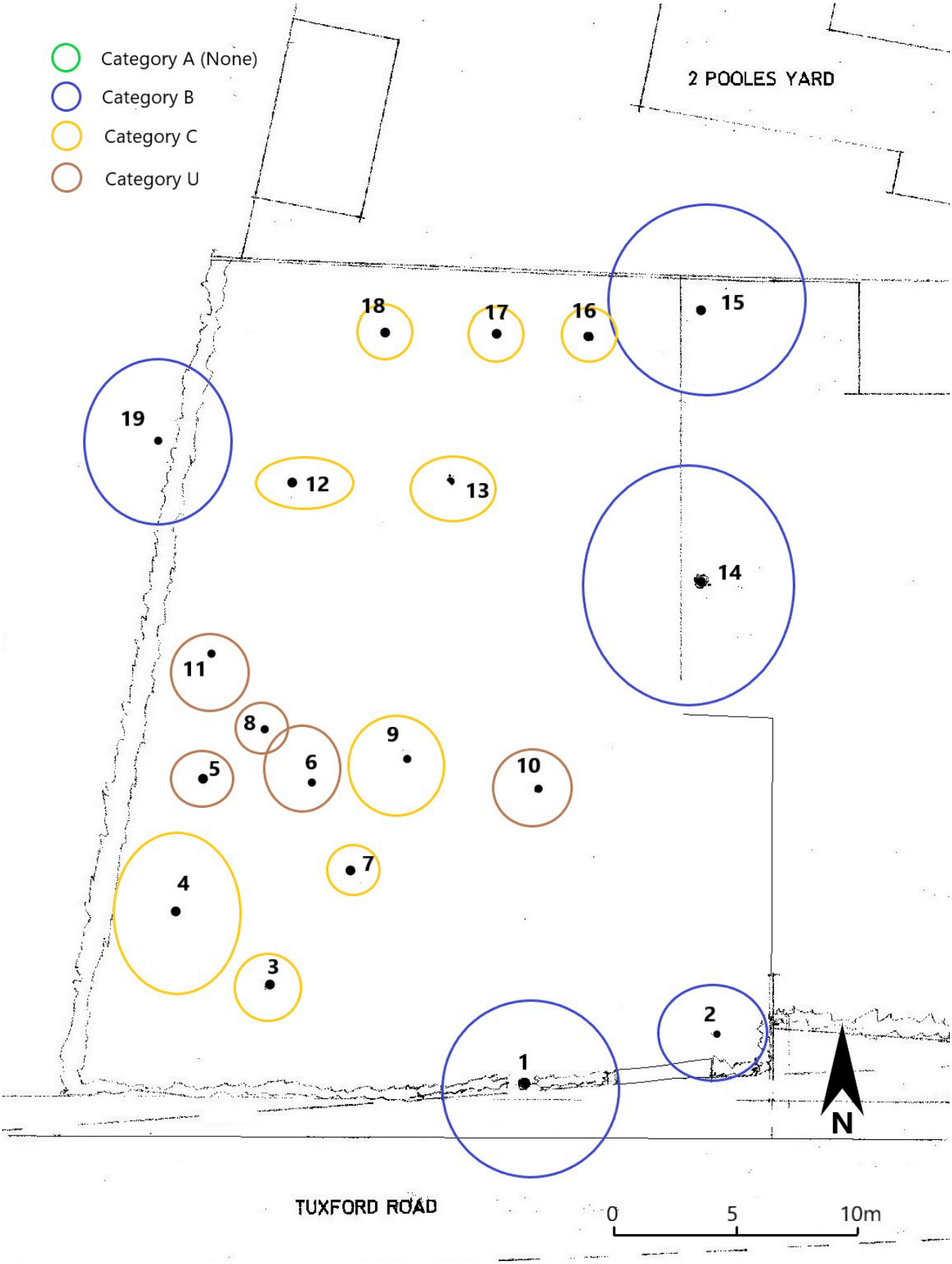


Figure 3 – Tree Category Plan

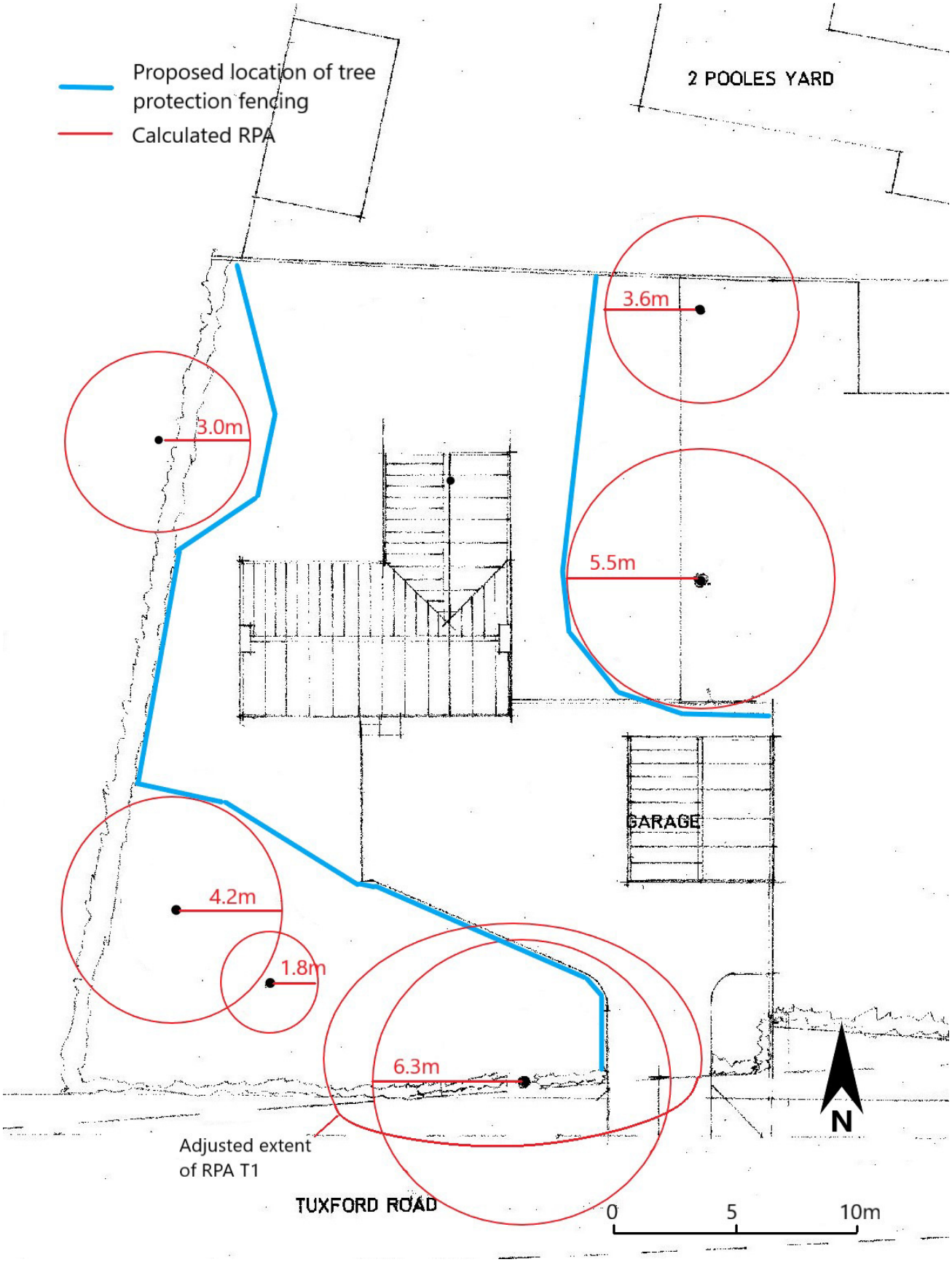


Figure 4 – Root Protection Area Plan

4. Tree Management

4.1 Initial Arboricultural Assessment

In the context of this site the proposed development comprises a new detached residential dwelling with a detached garage, accessed from a new driveway off Tuxford Road. The proposed position of the new building and access is shown within **Figure 4**. The table below summarises the potential impact of the proposed development based on the layout provided on the trees present within the area surveyed.

Ref	Tree	Category	Impact of development
1	Beech	B2	Shown as retained. RPA, adjusted to allow for the constraint of Tuxford Road, is likely to be impacted on the east side and a construction method that incorporates a cellular confinement ground protection system and a 'no-dig' construction methodology is likely to be required if the access remains in this location.
2	Spruce	B2	This tree will have to be removed as it lies on the edge of the proposed new access.
3	Spruce	C2	This tree could be retained in the garden and the canopy and RPA protected entirely by fencing.
4	Apple	C2	This tree could be retained in the garden and the canopy and RPA protected entirely by fencing.
5	Greengage	U	It is presumed that this tree will be removed from the front garden area of the new property.
6	Apple	U	It is presumed that this tree will be removed from the front garden area of the new property.
7	Apple	C2	It is presumed that this tree will be removed from the front garden area of the new property.
8	Damson	U	It is presumed that this tree will be removed from the front garden area of the new property.
9	Apple	C2	It is presumed that this tree will be removed from the front garden area of the new property.
10	Apple	U	It is presumed that this tree will be removed from the front garden area of the new property.
11	Cherry	U	It is presumed that this tree will be removed from the front garden area of the new property.
12	Apple	C2	It is presumed that this tree will be removed from the rear garden area of the new property.
13	Apple	C2	This tree will have to be removed as it sits within the footprint of the new building.
14	Cherry	B2	This tree can be retained and the crown and RPA fully protected by fencing.
15	Cherry	B2	This tree can be retained and the crown and RPA fully protected by fencing.
16	Apple	C2	It is presumed that this tree will be removed from the rear garden area of the new property.
17	Plum	C2	It is presumed that this tree will be removed from the rear garden area of the new property.
18	Plum	C2	It is presumed that this tree will be removed from the rear garden area of the new property.
19	Ash	B2	This tree can be retained and the crown and RPA fully protected by fencing.

It is a reasonable assumption that all, or the majority of the smaller fruit trees within the garden interior will be removed and that the boundary trees T14 / T15 and T19 within adjacent land can be retained and afforded sufficient space to avoid any impact or significant constraint to present or future growth.

The loss of Spruce along the frontage of Tuxford Road cannot be avoided if the access is placed where proposed. The loss of this tree will not be particularly significant in terms of visual amenity of canopy cover as it is of small stature and there are far larger trees protected under a TPO on the opposite (south) side of this road. There will be some impact on Beech T1 where the access crosses the eastern side of the RPA of this tree.

Adjusting the RPA to take into account the impact of Tuxford Road, it is likely that around 25% of the RPA of this tree will lie underneath the access and driveway and this will require ground protection measures (incorporating a cellular confinement system) and a 'no-dig' construction methodology to be employed. The crown of this tree has been lifted and is trimmed to avoid cables on the north-eastern side and this reduction of the canopy will mitigate in part the impact of the access and driveway but a porous surface will be required to allow in water and air. However, it may be possible to move the proposed access to avoid this tree entirely or significantly reduce the impact on the RPA.

4.2 General Recommendations

The trees along the boundaries of the site and within the adjacent rear garden area to the west will need to be adequately protected during any approved development works where the canopies or calculated root protection areas extend across the garden boundary. As a general rule at this site, measures to protect trees should follow the best practice principles set out in BS5837: Trees in Relation to Design, Development and Construction (2012). Prior to any construction or development work proceeding, the RPAs of individual trees to be retained should be marked out using the distances provided in the table within Appendix 1.

Marking out should be completed by a person with arboricultural or horticultural expertise as individual trees will have root zones that may be affected by local conditions and allowances will need to be made to accommodate this. The best practice principles have been broadly summarised below.

- All trees retained adjacent to the site should be protected by barriers or ground protection around the calculated Root Protection Area (RPA) and as indicated on any Tree Constraints Plan (TCP) that may be produced in association with the assessment.

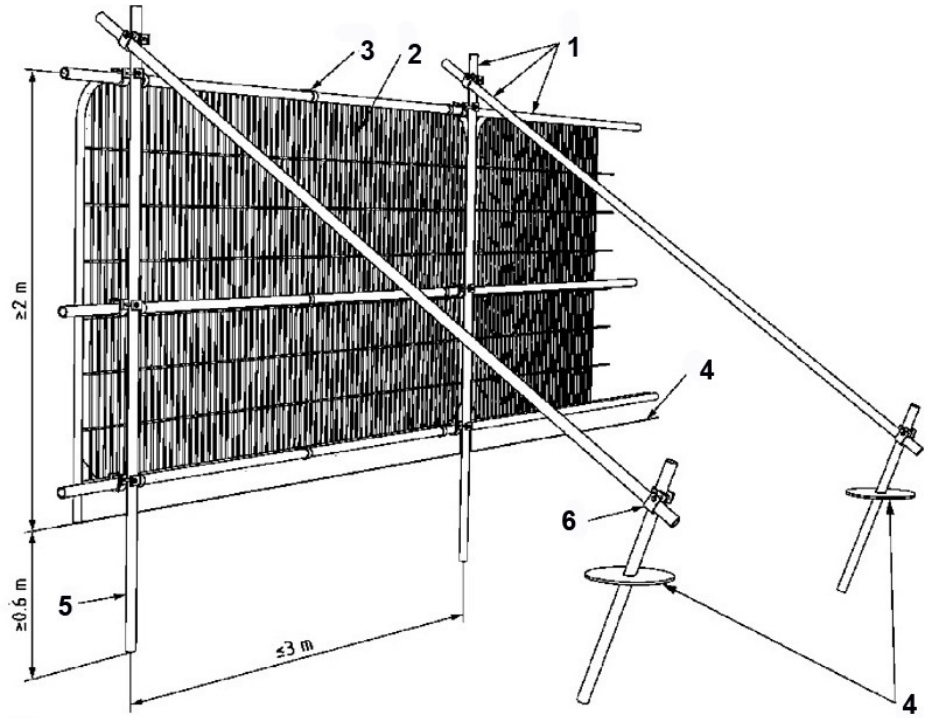
- Any fencing required should be erected prior to commencement of construction and before demolition including erection of any temporary structures. Once set up fences should not be removed or altered without prior consultation with the arboricultural advisor.

- Arrangements should be made for an arboriculturalist to supervise works and tree protection where trees are particularly vulnerable or sited close to access points.

- Pre-development works may be undertaken prior to the installation of fencing with the agreement of the local planning authority.

- All tree works should follow best practice procedures as set out in BS 3998 (2010). All trees should be maintained in good condition on site and be inspected annually (where overall condition requires) or every 2 years and after any major storm events, with safety a priority.

- Fencing should be clearly visible and suitable for the location, type and proximity of construction activity.



1. Standard scaffold poles
2. Heavy Guage 2m tall galvanised tube and weld mesh infill panels
3. Panels secured to uprights and cross members with wire ties
4. Ground Level
5. Uprights driven into ground until secure (up to 0.6m)
6. Standard scaffold clamps

- Where it has been agreed and shown on a Tree Protection Plan, construction access may take place within the RPA if suitable ground protection measures are in place (e.g. existing surfaced car park areas). In other areas this may comprise single scaffold boards over a compressible layer laid onto geo-textile materials for pedestrian movements. Vehicular movements over the RPA will require the calculation of expected loading and may require the use of proprietary protection systems.

- Once areas around trees have been protected by fencing, any works on the remaining site area may be commenced providing activities do not impinge on protected areas. Notices should be placed on fencing to indicate that operations are not permitted within the fenced area.

- Wide or tall loads etc. should not come into contact with retained trees. Banksman should supervise transit of vehicles, jibs, booms etc. where this is in close proximity to retained trees.

- Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree bole. No concrete mixing should be done within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.

- No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.

- Notice boards, telephone cables or other services should not be attached to any part of a retained tree.

- Where it is deemed necessary to operate a wide or tall load, plant bearing booms, jibs

and counterweights or other such equipment, as part of construction works, and such equipment would have potential to cause injurious contact with crown material i.e. low branches and limbs, of retained trees within the RPA fencing, it is best advised that appropriate, but limited tree surgery, be carried out beforehand to remove any obvious problem branches. This is classed as 'Facilitation Pruning' within BS 5837 (2012). Any such pruning should be undertaken in accordance with a specification prepared by an arboriculturalist.

- It is advised that a Pre-Commencement Site Meeting is held with contractors who are responsible for operating machinery, as described above. To firstly highlight the potential for damage occurring to tree crowns and to ensure that extra care is applied when manoeuvring machinery during such operations within close proximity to retained trees to avoid any contact.

- In the event of having caused any such branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with BS 3998 (2010) Recommendations for Tree Work, to correct the damage, upon completion of development.

Christopher Barker CEnv dipHort

Appendix 1: BS5837 Tree Schedule

Key:	Measurements	Age – Class	Overall Condition	BS 5837 2012 : Cascade Chart for Quality Assessment/Retention Category	Symbols:
	MS – Multi-stemmed	YNG-MAT-Young Mature	G – Good	A – High	< = less than
	Ht - Height in metres	SM – Semi-mature	F – Fair	B – Moderate	~ = approximately
	Stem – Stem Diameter at 1.5m in mm	Mat – Mature	P – Poor	C – Low	> = greater than
	Crown – Crown spread in metres	OM – Over mature	D – Dead	U – Trees of negligible significance	
	TD - Trunk division (height in metres)	**Est Yrs –** estimate of years remaining (>40 years; 20 –40 years; <20 years)		**Sub-categories:** **1** = mainly arboricultural values **2** = mainly landscape values **3** = mainly cultural values.	

RPA = Root protection area (equivalent to a circle with a radius 12 x the stem diameter for single stem trees and 10 x the basal diameter for trees with more than one stem arising below 1.5m above ground level).

Tree No	Species	Ht (m)	Stem Diam mm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA Radius (m)
T1	Beech *Fagus sylvatica*	14	525gl	N-4 S-5 E-4 W-5	3	M	20	G	Trunk divides at 2magl. Broad balanced crown. Cable on north east side with raised crown to avoid this. No structural faults visible from ground level	Retain if possible to maintain canopy cover along the road frontage.	B2	6.3
T2	Spruce *Picea abies*	9	240	N-2 S-2 E-2 W-3	2	SM	20	G	Conical canopy. No structural faults visible from ground level	None	B2	2.8
T3	Spruce *Picea abies*	3	50	N-1 S-1 E-1 W-1	0	Y	10	G	Conical canopy. No structural faults visible from ground level	Not a priority for retention.	C2	1.8
T4	Apple *Malus domestica CUL*	8	355	N-4 S-4 E-3 W-3	4	M	10	G	Trunk divides at 2magl. Broad irregular crown with internal regeneration. No structural faults visible from ground level	None	C2	4.2
T5	Greengage *Prunus Cul*	4	210	N-1 S-1 E-1 W-1	2	M	<10	P	Pollarded at 1.5magl. Irregular rejuvenation canopy. No structural faults visible from ground level	None	U	2.5
T6	Apple *Malus domestica CUL*	4	160 150	N-3 S-1 E-1 W-2	2	SM	<10	P	Black fungal bracket at 0.5m. Irregular crown in decline. Diseased and structurally suspect as a result.	None	U	2.0

Tree No	Species	Ht (m)	Stem Diam mm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA Radius (m)
T7	Apple *Malus domestica CUL*	3	110	N-1 S-1 E-1 W-1	2	SM	10	P	Pollarded at 2magl with dense regeneration. No structural faults visible from ground level	Not a priority for retention.	C2	1.8
T8	Damson *Prunus domestica*	4	175	N-1 S-1 E-1 W-1	2	M	<10	P	Pollarded at 3mgl with irregular rejuvenation. No structural faults visible from ground level	None	U	2.1
T9	Apple *Malus domestica CUL*	7	295	N-2 S-3 E-2 W-4	3	M	10	F	Irregular canopy extending west. Significant internal regeneration. No structural faults visible from ground level	Not a priority for retention.	C2	3.5
T10	Apple *Malus domestica CUL*	3	265	N-0 S-2 E-3 W-0	2	OM	<10	P	Large cavity on trunk. Pollarded wit internal regeneration and low branch on south eastern side. Cavity and decay is of structural concern.	None	U	3.1
T11	Cherry *Prunus avium Cul*	4	220	N-1 S-3 E-3 W-3	2	OM	<10	P	Irregular twisted crown extending south west. Significant dead wood with second trunk removed. No structural faults visible from ground level but is in decline.	None	U	2.6
T12	Apple *Malus domestica CUL*	5	210	N-1 S-1 E-3 W-1	2	SM	10	P	Irregular upright crown extending east. No structural faults visible from ground level	Not a priority for retention.	C2	2.5
T13	Apple *Malus domestica CUL*	4	235	N-1 S-2 E-2 W-2	2	SM	10	F	Pollarded on north side. Irregular crown extends south. No structural faults visible from ground level	Not a priority for retention.	C2	2.8
T14	Cherry *Prunus avium Cul*	9	460	N-6 S-6 E-5 W-6	4	M	20	F	Trunk divides at 2magl. Broad spreading crown with internal regeneration. No structural faults visible from ground level	Retain if practical to do so and protect the RPA and canopy.	B2	5.5
T15	Cherry *Prunus avium Cul*	10	300	N-4 S-4 E-5 W-5	5	M	20	G	Broad balanced crown lifted. No structural faults visible from ground level	Retain if practical to do so and protect the RPA and canopy.	B2	3.6

Tree No	Species	Ht (m)	Stem Diam mm@ 1.5m	Canopy Spread (m)	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Recommendations	BS 5837 Category	RPA Radius (m)
T16	Apple *Malus domestica CUL*	1	<100	N-1 S-1 E-1 W-1	1	Y	10	G	Small, trimmed crown. No structural faults visible from ground level	Not a priority for retention.	C2	1.8
T17	Plum *Prunus Cul*	2	<100	N-1 S-1 E-1 W-1	1	Y	10	G	Small, trimmed crown. No structural faults visible from ground level	Not a priority for retention.	C2	1.8
T18	Plum *Prunus Cul*	3	<100	N-1 S-1 E-1 W-1	0	Y	10	G	Small, trimmed crown. No structural faults visible from ground level	Not a priority for retention.	C2	1.8
T19	Ash *Fraxinus excelsior*	7	250est	N-4 S-4 E-3 W-3	4	SM	20	G	Balanced round crown extending over garden boundary. No structural faults visible from ground level	Protect the crown and RPA where these extend across the garden boundary.	B2	3.0