

**Tree Survey Report for
Land at Marlpit Cottage, Netherwood
Lane, Chadwick End, Solihull, B93 0BD**



Cotswold Wildlife Surveys

November 2020

CONTENTS

Page No.

SUMMARY	3
1.0 INTRODUCTION	4
1.1 Proposed works.....	4
1.2 Survey area	4
2.0 TREE SURVEY	6
3.0 TREE CATEGORISATION	7
4.0 ARBORICULTURAL IMPLICATIONS ASSESSMENT	8
4.1 Below ground constraints	8
4.2 Above ground constraints	9
4.3 Replacement Planting	9
4.4 Conclusions	9
5.0 ARBORICULTURAL METHOD STATEMENT.....	10
5.1 Construction Restrictions	10
5.2 Tree Works Specification	10
5.3 Replacement Planting Specification.....	14
6.0 RECOMMENDATIONS	15
TERMS AND DEFINITIONS.....	16
APPENDIX I - TREE SURVEY SCHEDULE	17
APPENDIX II – TREE QUALITY ASSESSMENT.....	18
APPENDIX III – TREE CONSTRAINTS PLAN	19
APPENDIX IV – TREE PROTECTION PLAN	20

SUMMARY

On land at Marlpit Cottage on Netherwood Lane in Chadwick End, Solihull, planning permission is being sought for the construction of a new dwelling.

On 9th November 2020, Andy Warren from Cotswold Wildlife Surveys undertook a tree survey of the site.

All trees within or near the site boundaries were surveyed, and those that may be affected are considered within this report.

The aim of the report, which has been produced in accordance with British Standard 5837:2012 '*Trees in Relation to Design, Demolition & Construction - Recommendations*', is to systematically assess the arboricultural implications arising as a result of the proposed scheme, and to provide suitable recommendations regarding the potential effect on trees.

The results of the tree survey can be summarised as follows:

- The survey focussed on seven mature/middle aged trees within close proximity to the proposed dwelling (T1-T7);
- There were several smaller trees and shrubs within or near the footprint of the proposed building, but these are all to be removed as they are in poor physiological and structural condition, and their removal will be necessary to eradicate Japanese Knotweed *Fallopia japonica* which is present on the site;
- T1 (Scot's Pine *Pinus sylvestris*) and T2 (Lime *Tilia x europaeus*) will also have to be removed to facilitate the Japanese Knotweed removal works;
- The root protection areas (RPAs) and canopy spreads of T1-T7 were measured;
- The new dwelling will not impact on the RPAs or canopy spreads of T3-T7, although protective barrier fencing will be used to ensure there is no damage to the boundary vegetation;
- Other trees in close proximity were not surveyed, as they lie well away from the construction zone and will not be impacted.

1.0 INTRODUCTION

This report has been prepared to accompany a planning submission by Mr & Mrs Phillips (hereafter – clients) relating to the proposed construction of a new dwelling on land at Marlpit Cottage on Netherwood Lane in Chadwick End, Solihull (hereafter – site). It has been produced in accordance with British Standard 5837: 2012 ‘*Trees in relation to Design, Demolition and Construction – Recommendations*’, (hereafter – BS5837).

The scope of BS5837 is to provide guidance on how trees and other vegetation can be suitably integrated into construction and development schemes. The overall aim is to ensure the protection of amenity and landscape through appropriate retention of trees.

This report has been produced in accordance with BS5837, and is intended to demonstrate how trees have been properly considered in relation to the proposed scheme. The objective is to provide recommendations for tree protection (where applicable) relating to the scheme’s potential impact on trees and vica versa.

Following instruction, the consultant visited the site on 9th November 2020. Pursuant to the agreed brief, a site assessment and a BS5837 tree survey were carried out. All trees within impacting distance of the proposed construction activities were surveyed.

1.1 Proposed works

The proposed scheme is for the construction of one new dwelling.

1.2 Survey area

The site consisted of an un-used plot of land lying between Pear Tree Cottage and The Willows on the south side of Netherwood Lane.

The northern part of the land comprised an area of bare ground, rough grass and tall ruderal vegetation of poor botanical diversity (Fig. 1). Around the boundaries were a few scattered trees, including a cypress species *Cupressus sp* (in the neighbouring garden), a Scot’s Pine (T1) and a Lime (T2) (Fig. 2).



Figs. 1 & 2 Application site north end looking south (L) and north (r)

To the south and west the land dropped away (Fig. 3). Crack Willows *Salix fragilis* and Goat Willows *S. caprea* (T7) were growing in this area which lies well away from the proposed construction zone.



Fig. 3 Land to south of site – T2 in centre



Fig. 4 Land to east of site

The eastern side of the application site was relatively flat and lightly wooded (Fig. 4), with species including Sycamore *Acer pseudoplatanus* (T4 and T6), Field Maple *A. campestre* (T5) and Ash *Fraxinus excelsior* (T3).

Scattered shrubs included Elder *Sambucus nigra*, Hawthorn *Crataegus monogyna* (all very straggly and in poor structural and physiological condition), and a small *Prunus* species.

Japanese Knotweed was noted across the centre of the site, and treatment has been ongoing for a couple of years. However, in order to eradicate it properly, the treatment company has confirmed that some of the trees and shrubs will have to be removed (*pers comms*).

The site is sensitive from an arboricultural perspective, due to the presence of the trees around the boundaries.

The objective assessment resulted in BS5837 categories of 'A2', 'B3' and 'C1' being attributed to the trees (T1-T7).

The trees provide both an individual and collective contribution to the site, and overall their physiological and structural condition is good to fair.

The survey data and site observations have been used to illustrate the site's arboricultural restrictions in the form of a Tree Quality Assessment and Tree Constraints Plan at Appendix II and III respectively.

A Tree Protection Plan is shown in Appendix IV.

2.0 TREE SURVEY

The survey focussed on seven trees across the site, and their locations are shown on the plan below. Other trees were outside the construction site area and were not surveyed, although their positions are marked on the plan. Shrubs are also shown, although these have not been included in the assessment.



Plan 1 Tree survey and site plan

The detailed tree survey schedule is shown in Appendix I.

3.0 TREE CATEGORISATION

Tree No.	Species	Category
T1	Scot's Pine	B3
T2	Lime	A2
T3	Ash	C1
T4	Sycamore	C1
T5	Field Maple	B3
T6	Sycamore	C1
T7	Goat Willow	C1

A2: Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance.

B3: Trees with some conservation value for wildlife, and potential cultural benefits.

C1: Trees not qualifying in higher categories.

Although category C trees have some cultural, ecological and landscape value, they should not constrain the proposed development, as they could be replaced. Their removal may also assist in the growth and development of higher category trees.

The tree quality assessment is shown in Appendix II.

4.0 ARBORICULTURAL IMPLICATIONS ASSESSMENT

The following information, as with the prior contents of this report, should be read in conjunction with the tree data table and the TCP (Appendix III).

4.1 Below ground constraints

The topography of the site comprises a flat northern and eastern area which drops away to the west and south.

Irrespective of the proposed development, none of the seven trees were identified as requiring removal (BS5837 category 'U') for reasons of sound arboricultural practice.

However, T1 and T2, along with a number of shrubs, will require removal to facilitate the eradication of Japanese Knotweed on the site. Irrespective of this, the shrubs are recommended for removal anyway, as they are in poor structural and physiological condition.

The construction of the new dwelling will be used in conjunction with the installation of protective barrier fencing (PBF).

The PBF will be of an appropriate specification and will be installed to exclude construction activities from the RPAs of retained trees. At the point of PBF being installed, the enclosed RPA sections become construction exclusion zones (CEZ). This is to protect the RPAs of good quality retained trees during construction. The construction restrictions, phased processes and specification for the PBF form part of the AMS.

The construction of the new dwelling and access will require sensitive positioning to minimise the impacts on retained trees.

As such, applying BS5837 the root protection areas of retained trees (along with T1 and T2 which are due for removal) were calculated. These are shown on the Tree Constraints Plan (TCP) in Appendix III.

It can be seen that no RPAs of the retained trees will be incurred by the construction of the footings or access.

The RPAs of other trees are well outside the proposed footprint of the new development and will not be affected. These are not shown.

As services will be associated with the new dwelling, any underground utilities which have to be installed within close proximity to the RPAs will take account of the trees' roots and their growing environment.

As such, excavations may have to be carried out manually, potentially with the use of hand operated machinery and an air spade.

Due to the installation of PBF for the duration of the proposed construction phase, it is not anticipated that RPA incursion will occur on any trees outside the construction zone.

However, where this need arises, it may be necessary to protect the tree roots and their growing environment. If so, the advice of the consultant should be sought and the written permission of the Local Authority may also be required.

4.2 Above ground constraints

Overall there will be some effect of the proposed development on the landscape when viewed from locations outside the site, as several large trees are to be removed. However, there is a significant woodland screen which will not be affected, so the visual impact is expected to be relatively minor.

Protective barrier fencing will be provided to protect retained trees during construction works.

The position of the fence is to be agreed following approval of the proposed site layout by the local planning authority. However, suggestions are given as to where the fence should be erected (Appendix IV).

4.3 Replacement Planting

No specific tree planting has been proposed, and none is required, as the site is well-screened.

4.4 Conclusions

The objective assessment above has resulted in the following:

- The survey focussed on seven mature/middle aged trees within close proximity to the proposed dwelling (T1-T7);
- There were several smaller trees and shrubs within or near the footprint of the proposed building, but these are all to be removed as they are in poor physiological and structural condition, and their removal will be necessary to eradicate Japanese Knotweed which is present on the site;
- T1 (Scot's Pine) and T2 (Lime) will also have to be removed to facilitate the Japanese Knotweed removal works;
- The root protection areas (RPAs) and canopy spreads of T1-T7 were measured;
- The new dwelling will not impact on the RPAs or canopy spreads of T3-T7, although protective barrier fencing will be used to ensure there is no damage to the boundary vegetation;
- Other trees in close proximity were not surveyed, as they lie well away from the construction zone and will not be impacted.
- Construction traffic and materials storage areas will be contained on existing bare ground away from retained trees;
- This Arboricultural Impact Assessment (AIA) is supported by an Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP).

5.0 ARBORICULTURAL METHOD STATEMENT

5.1 Construction Restrictions

The following restrictions are to be employed to ensure the suitable protection of retained trees:

- i. Tree works are to be completed prior to commencement of any and all construction processes;
- ii. No tree works not specified below are permitted;
- iii. PBF is to be installed prior to the construction works commencing;
- iv. No fires are to be lit and no machinery, plant or vehicles are to be washed down within 10.0 m of a tree's canopy;
- v. During construction activities, RPAs may not be breached, i.e. no surfacing works, no chemicals/materials to be transported or stored or used or mixed, without the prior advice of the consultant and the consent of the Local Authority;
- vi. No mechanical digging or scraping is permitted within an RPA;
- vii. Only following completion of construction can any hard surfacing used for construction traffic be removed;
- viii. Only following construction can the PBF be removed and the soft landscaping/tree planting works (if required) be undertaken.

5.2 Tree Works Specification

Tree works must only be undertaken with the full and written permission of the Local Authority and/or in accordance with detailed planning permission and to BS:3998 by a tree surgeon who is suitably qualified, experienced and insured.

The tree works listed below are the result of the AIA's recommendations.

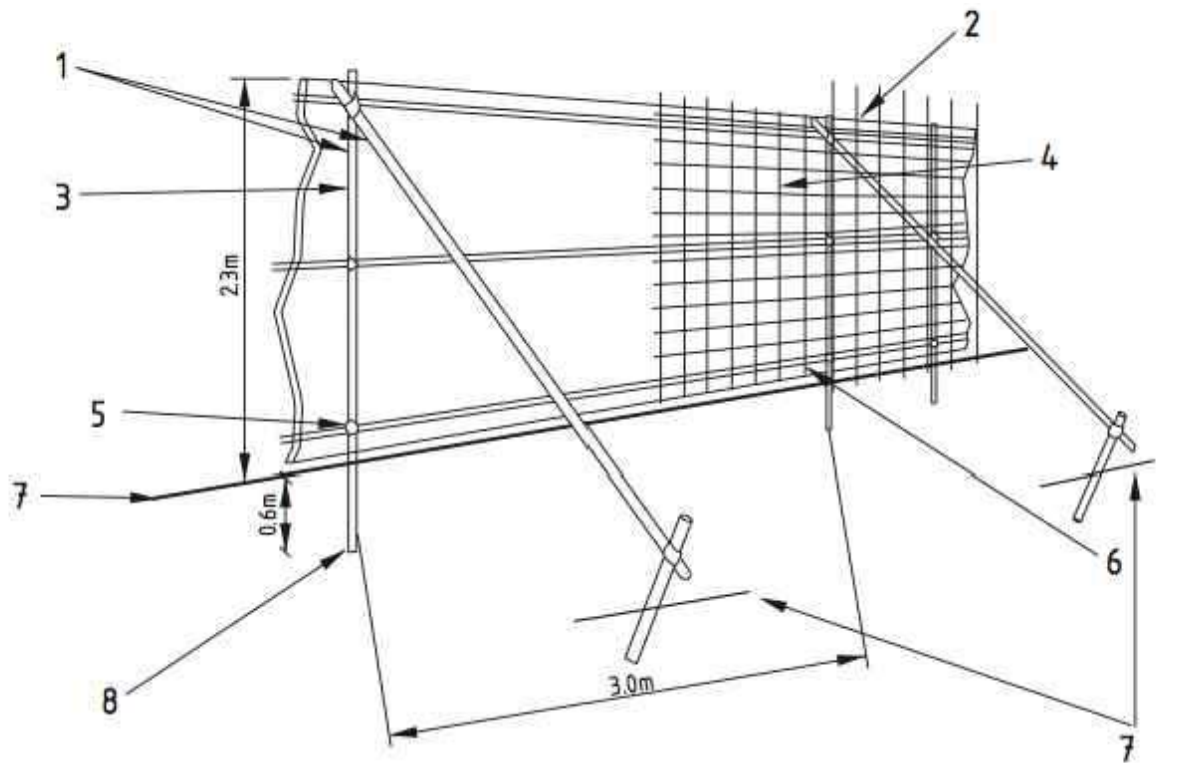
TREE WORK SUMMARY

Tree Number	Remedial works
T1 and T2	Remove

Protective Barrier Fencing (PBF) Specification

Following the completion of any tree works, PBF is to be installed as illustrated on the TPP, and is to remain in situ for the entire duration of the construction phases unless otherwise agreed in writing by the Local Authority.

The PBF, due to the degree and proximity of work taking place around the trees, is to consist of *“a vertical and horizontal (scaffold) framework, well braced to resist impacts, with the vertical tubes spaced at a maximum of 3m. Onto this, weld mesh panels should be securely fixed with wire or scaffold clamps. Weldmesh panels on rubber or concrete feet are not resistant to impact and should not be used, unless they are securely fixed to the ground.* The type of fence to be used is shown in Fig. 5 overleaf.



- | | |
|--|--|
| Standard scaffold poles | 5 Standard clamps |
| Uprights to be driven into the ground | 6 Wire twisted and secured on inside face of fencing to avoid easy dismantling |
| Panels secured to uprights with wire ties and where necessary standard scaffold clamps | 7 Ground level |
| Weldmesh wired to the uprights and horizontals | 8 Approx. 0.6 m driven into the ground |

Fig. 5 Protective Barrier Fencing

Tree protection signage denoting the words “*TREE PROTECTION ZONE – KEEP OUT*” is to be fixed onto every other panel of the PBF (Fig. 4).



Fig. 6 Example of signage

Sensitive RPA Excavations

Where works are proposed within an RPA, special excavation techniques are required to ensure the rooting volume, and the existing conditions for growth, are protected during both the excavations and the duration of the works. The following measures are to be implemented where said situation is present.

- Protect the soil from compaction or soil shearing (i.e. direct contact with open soil);
- Retain the soils aerobic conditions and facilitate the vertical and lateral exchange of water and air;
- Undertake the excavation works whilst complying with the construction process restrictions

The excavation of soil within an RPA is to be conducted manually with the use of manually operated (hand held) machinery such a pneumatic drill. If required thereafter, an air spade with soil suction should be used as a non-invasive means of excavation to ultimate depth.

Where rooting volume is encountered greater than 25 mm in diameter, for the duration of exposure, the roots should be wrapped in dry, clean hessian sacking. In certain circumstances roots smaller than 25 mm can be pruned back. However, pruning of roots greater than 25 mm in diameter will require the advice of the consultant and written permission from the Local Authority.

Prior to backfilling, any hessian wrapping should be removed and roots should be surrounded/packed with sharp sand (not building sand).

This situation will not be encountered on the land at Marlpit Cottage, as there will be no excavation within the RPAs of the retained trees.

Special Engineering Solutions

Where replacement hard surfacing is to be installed within an RPA, special measures will be required to ensure the rooting volume, and the existing conditions for growth, are protected.

On land at Marlpit Cottage this is not thought to be required for the proposed construction scheme, but is shown here for information in case the need arises, e.g. for the construction of a temporary access road.

The preparation and installation of a load bearing surface solution is to be installed within an RPA that is to:

- Be a no dig solution for the installation of hard surfacing within the RPAs of retained trees;
- Retain the soils aerobic conditions and facilitate the vertical and lateral exchange of water and air;
- Install the surface treatment whilst complying with any construction process restrictions.

A geotextile is to be laid onto the prepared ground and a cellular confinement system fixed on top and 'charged' with a washed no fines aggregate. This is to be 'dressed' using traditional gravel. This will require the installation of a thin layer of gravel bedding and a filled DuoBlock-type system with the surface material on top. The illustration below shows this load bearing surfacing (Fig. 7).

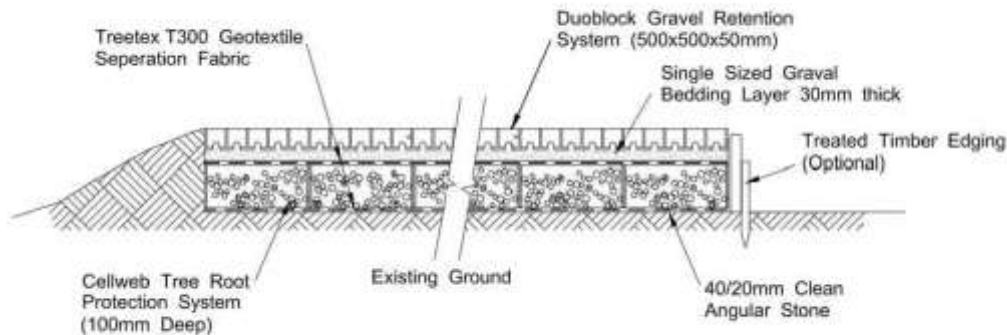


Fig. 7 Example of load bearing surfacing for use in RPAs

The installation of this system will minimise the impacts of the construction traffic and activities on the RPAs of retained trees, and will protect the RPAs for all future use of the site's users. As such it is not anticipated that any additional mitigation measures will be required.

Ground protection measures may be needed when working close to T3-T7. If the situation arises, this will consist of scaffold boards placed on top of a 50 mm layer of bark chippings (or sand or graded aggregate) spread on top of porous geotextile membrane (Fig. 8).

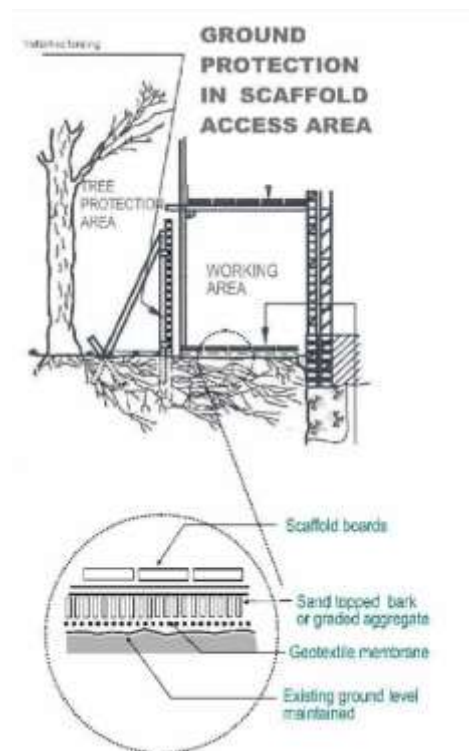


Fig. 8 Ground protection measures

5.3 Replacement Planting Specification

Although not currently proposed, if any trees are to be planted, the selection of healthy specimens of a suitable species will be carried out appropriately in order to promote and enhance biodiversity, continuity of tree cover and suit the spatial constraints of the site.

Each new tree's location should be properly prepared with adequate drainage and room for future development. For larger specimens:

- The planting pit is to be excavated to a sufficient width and depth to accommodate the root-ball, allowing a minimum of 1.0 m clearance, with the additional breaking up of the planting pit's sides and base;
- The tree is to be planted to the same depth as existing, i.e. not above the root collar, and it should be back-filled with high grade soil and firmed in;
- The tree is to have a non-intrusive and adjustable supportive system installed in the form of either staking or above/underground guying;
- A bark/wood-chip mulch is to be applied around the base of the planted tree to at least a 2.0 m radius and < 5cm depth;
- A suitable maintenance programme, i.e. additional watering, fertilizing, weed control and mulching, is essential to ensure the tree establishes successfully.

6.0 RECOMMENDATIONS

This report is released to the clients for them to distribute at their discretion. The consultant is available via telecom and/or email (via the methods on the back page) for any queries relating to this report and/or any other matter relating to arboriculture (which will form part of a separate contract).

The arboricultural supervision/monitoring is therefore recommended thus:

- On-site observation/guidance at the time of tree work operations;
- Induction of site team members regarding general and site specific arboricultural considerations and the assignment of key personnel (site manager) responsible for the AMS;
- Production of statement of delegated powers (if applicable);
- Production of written instructions for dealing with variations and/or incidents (if applicable);
- On completion of the development, sign off the site as having correctly adhered to this AMS.

Terms and Definitions

“*Arboriculturist*” - person who has, through relevant education, training and experience, gained recognized qualifications and expertise in the field of trees in relation to construction.

“*Land survey*” - an accurately measured land survey (also known as a topographical survey) should be undertaken showing all relevant existing site features.

“*Tree survey*” - should be undertaken by an arboriculturist and should record the information about trees on a site independently of and prior to and specific design for development. The results of a tree survey should be included in the preparation of a tree constraints plan, which should be used to assist with the site design.

“*Tree categorization method*” - should be applied by an arboriculturist and is to identify the quality and value of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained should development occur.

“*Tree constraints plan (TCP)*” - an accordingly scaled plan prepared by an arboriculturist for the purposes of layout design showing the tree stem, crown spread, root protection area and unique identification number.

“*Root protection area (RPA)*” - layout design tool indicating the area surrounding a tree that contains sufficient rooting to ensure the survival of the tree, shown on the TCP in m². The radius is calculated as a function of the tree stem diameter; x12 at 1.5m from ground level for single trees and up to five stems. For trees with more than five stems, the combined stem diameter should be calculated as the square root of the (mean stem diameter)² × number of stems. An arboriculturist may change the shape of an RPA but not reduce its area.

“*Arboricultural implications assessment (AIA)*” - study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

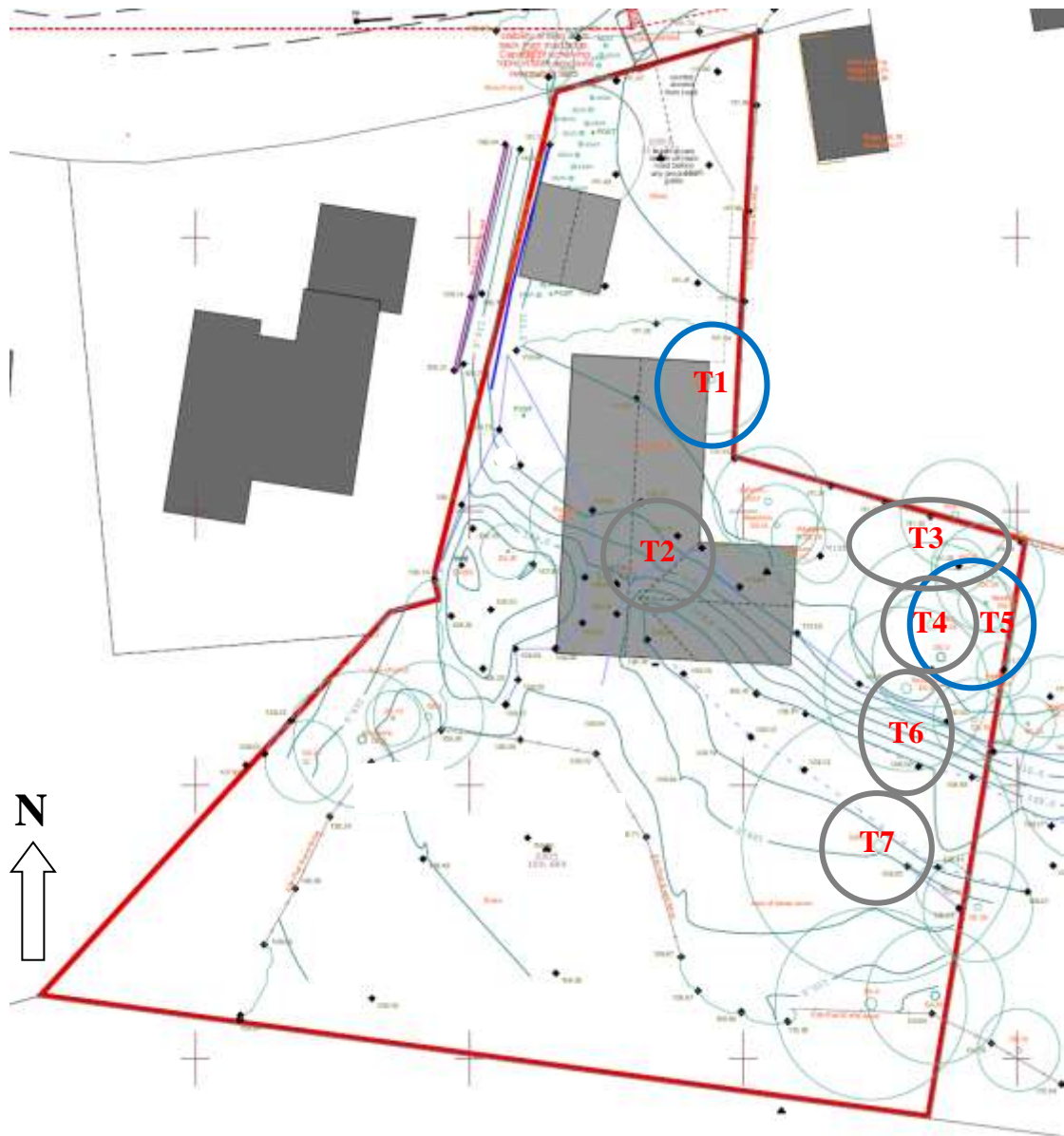
“*Arboricultural method statement (AMS)*” - methodology for the implementation of any aspect of development that has the potential to result in loss of or damage to a tree.

“*Tree protection plan (TPP)*” - an accordingly scaled plan prepared by an arboriculturist showing the finalised layout proposals detailed within the AMS, which can be shown graphically.

Appendix I - Tree survey schedule

Tree reference number	Species	Height m	Stem diameter mm	Branch spread m	Height of crown clearance m	Age class	Physiological condition	Structural condition	Preliminary management recommendations	Estimated remaining contribution years	Category grading
1	Scot's Pine <i>Pinus sylvestris</i>	16	529	N 4 S 5 E 4 W 5	4	Mature	Fair	Fair	Remove to facilitate Japanese Knotweed eradication	20-40	B3
2	Lime <i>Tilia x europaeus</i>	20	Four stems 280/310/335/430	N 4 S 4 E 4 W 4	0	Mature	Good	Good	Remove to facilitate Japanese Knotweed eradication	40+	A2
3	Ash <i>Fraxinus excelsior</i>	19	Co-dominant 271 & 358	N 1 S 6 E 4 W 9	4	Mature	Fair	Fair	-	20-40	C1
4	Sycamore <i>Acer pseudoplatanus</i>	16	258	N 3 S 3 E 3 W 3	4	Middle aged	Fair	Fair	-	40+	C1
5	Field Maple <i>Acer campestre</i>	19	327	N 6 S 2 E 7 W 1	4	Mature	Good	Fair	-	40+	B3
6	Sycamore <i>Acer pseudoplatanus</i>	14	375	N 1 S 6 E 3 W 3	0	Mature	Fair	Fair to poor	-	40+	C1
7	Goat Willow <i>Salix caprea</i>	10	510	N 4 S 4 E 4 W 4	0.5	Mature	Good	Good	-	40+	C1

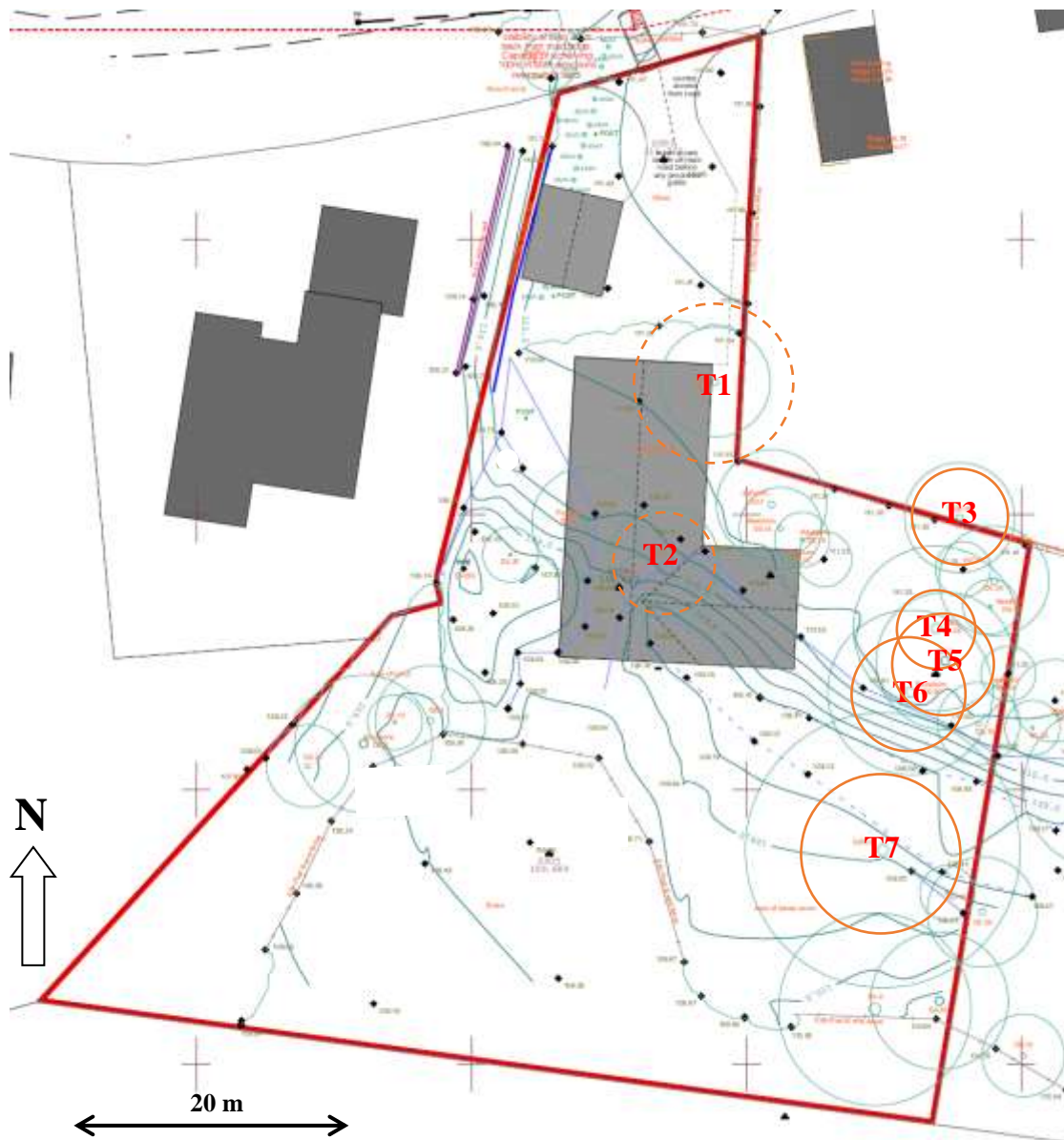
Appendix II – Tree quality assessment



Plan 2 Tree Quality Assessment & crown spread (to scale)

- Category U - trees for removal
- Category A – high quality
- Category B – moderate quality
- Category C – low quality

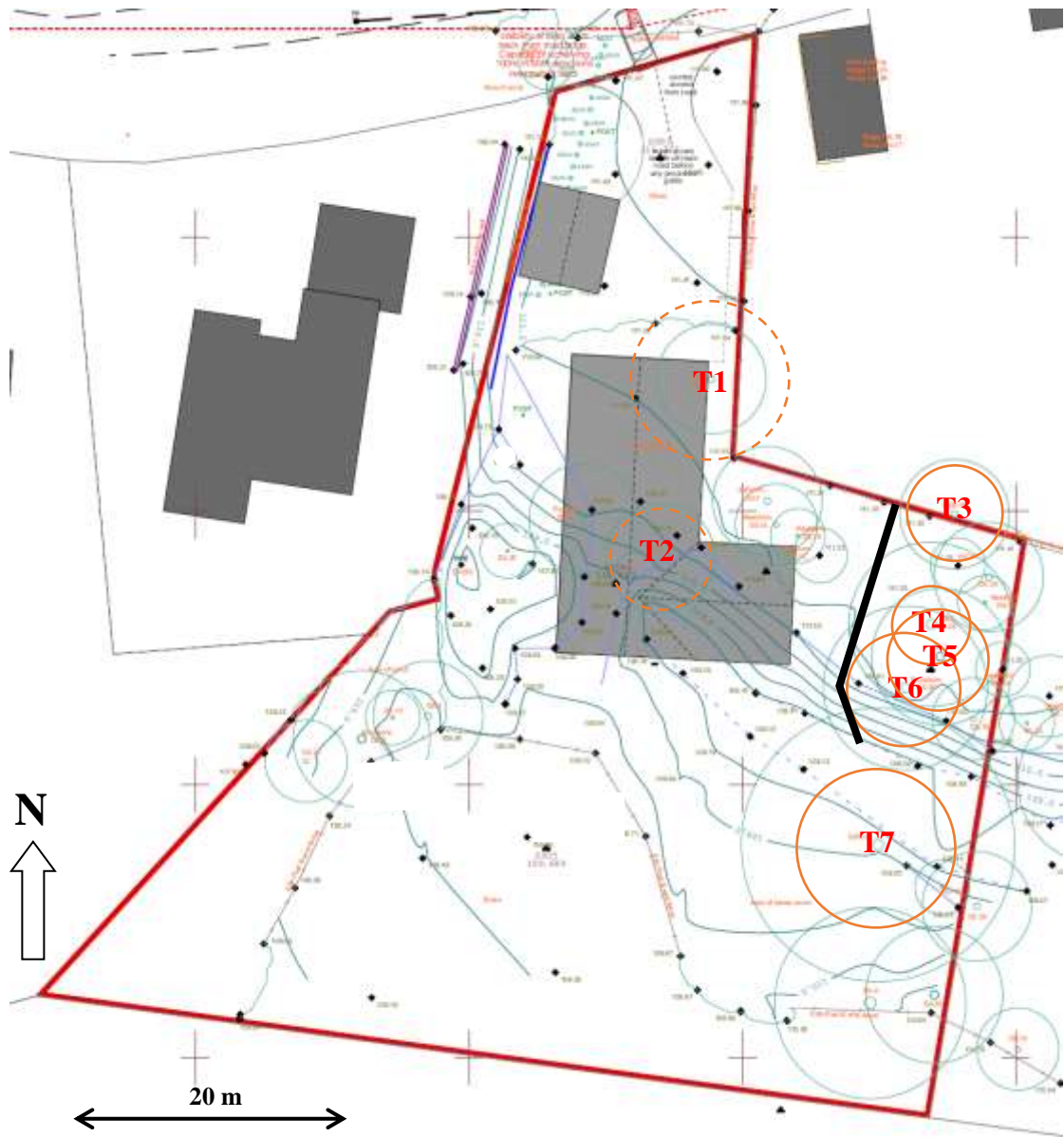
Appendix III – Tree constraints plan



RPAs shown to scale (RPA radius in metres)

Tree No.	Tree species	RPA radius (m)
T1	Scot's Pine	6.3
T2	Lime	4.0
T3	Ash	3.8
T4	Sycamore	3.1
T5	Field Maple	3.9
T6	Sycamore	4.5
T7	Crack Willow	6.1

Appendix IV – Tree protection plan



Protective barrier fence **—————**

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Land at Marlpit Cottage, Chadwick End, Solihull – Tree Survey Report

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