



BS 5837:2012 Arboricultural Survey

Banbury 200, Southam Road, Banbury

Presented to **Lysander**

Issued: January 2021

Delta-Simons Project No. 20-1787.01



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Report Details

Client	Lysander
Report Title	BS 5837:2012 Arboricultural Survey
Site Address	Banbury 200, Southam Road, Banbury, OX16 3AE
Project No.	20-1787.01
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Quality Assurance

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
1	Final	22 nd January 2021				
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Executive Summary

Purpose	Delta-Simons Environmental Consultants Ltd was instructed by Lysander ('the Client'), to undertake a Tree Survey to BS 5837:2012 standard of an area west of Southam Road in Banbury, Oxfordshire ('the Site'). The survey was undertaken on 11 th January 2021. The survey was undertaken to inform a planning application for the redevelopment of the Site.
Current Site Status	The majority of the Site comprises of an industrial warehouse with associated hardstanding car parking, access and service yard. Soft landscaping comprised areas of grassland at the north-eastern corner of the Site and along the southern Site boundary, and a shrub bed along the eastern aspect of the warehouse. Scattered trees were located at the western and a section of the southern boundary. The Site did not support standing water at the time of the survey.
Proposed Development	It is understood that the Site will be developed for the storage of operational vehicles comprising elevational alterations, associated parking, vehicle barriers, guard hut and associated infrastructure.
Results	A total of 19 trees and four tree groups were identified and assessed as part of the Tree Survey. The results of the desk search undertaken on Cherwell District Council website on 08/01/2021 indicate that no trees on-Site or immediately adjacent to the Site are covered by Tree Preservation Orders (TPOs), or are within a Conservation Area.
Recommendations	<p><u>Recommendation 1 (Adequate Tree Protection)</u></p> <p>Those trees identified within the proposed development plan for retention will need to be adequately protected during any approved development works. Measures to protect trees should follow the best practice principles set out in BS 5837: Trees in Relation to Design, Development and Construction (2012).</p> <p>Prior to any construction or development work proceeding, the Root Protection Area (RPAs) of individual trees to be retained should be marked out. Marking out should be completed by a competent person with arboricultural expertise. All trees retained on-Site and adjacent to the Site should be protected by barriers or ground protection around the calculated RPA, and as indicated on the Tree Constraints Plan (TCP) produced in association with this survey.</p> <p><u>Recommendation 2 - Bats (Low Bat Roost Potential (BRP) Trees)</u></p> <ul style="list-style-type: none"> ▲ Should any works be required to the five overhanging trees assessed as having low BRP, these should be completed under a method statement which could include a single dawn survey completed during the active bat season (April-October, inclusive) on the morning prior to the works being undertaken, or; ▲ Alternatively, a licenced bat ecologist trained to use specialist tree climbing equipment could undertake a thorough inspection of the potential roost features immediately prior to works commencing.
<p>This Tree Survey Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This Executive Summary should be read in conjunction with the full Report.</p>	

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1.0 Introduction

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was instructed by Lysander (the 'Client') to undertake an Arboricultural Survey to BS 5837:2012 standard. The survey was undertaken of land to the west of Southam Road in Banbury, Oxfordshire (hereafter referred to as 'the Site'). The survey was undertaken on 11th January 2021. The Site location and the area surveyed are shown in Figure 1. The survey was undertaken in order to inform a planning application for the redevelopment of the Site.

The aims of the Tree Survey were to:

- ▲ Identify 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 trees identified and the value of these within the development;
- ▲ 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 actions to remove this risk; and
- ▲ Recommend tree management or mitigation measures where appropriate.

1.2 Site Description

The Site is centred at Ordnance Survey (OS) grid reference SP 45129 41464, to the north-west of Banbury in Oxfordshire. The Site covers an area of 3.2 hectares (ha) and is dominated by an industrial warehouse with associated hardstanding car parking, access and service yard. Soft landscaping is limited to areas of grassland in the north-eastern corner and along the southern boundary of the Site, and a shrub bed along the eastern aspect of the warehouse. A small group of trees were located within the south-eastern extent and further scattered trees overhung parts of the southern boundary. The Site did not support standing water at the time of the survey.

The Site is set on the edge of an industrial estate, north of Banbury. Located beyond the northern boundary is a continuation of the industrial estate. Beyond the eastern boundary lies a Waitrose supermarket and Southam Road beyond. To the south lies a cemetery and residential housing. To the west lies a large carparking area with Ruscote Avenue beyond.

The Site layout is shown in Figure 2.

1.3 Proposed Development

It is understood that the Site will be developed for the storage of operational vehicles comprising elevational alterations, associated parking, vehicle barriers, guard hut and associated infrastructure.

2.0 Legislation

2.1 Trees

Local planning authorities look upon trees as being highly beneficial to the locality. To ensure that any important specimens, or significant groups of trees are retained, they may place Tree Preservation Orders (TPOs) on them. In other situations, villages or whole districts may be classified as conservation areas. In these instances certain trees in the designated area will be protected. When trees are protected, legal procedures must be followed before any work is carried out.

When trees are protected by Preservation Orders, no work should be carried out on them without prior written consent from the Local Planning Authority (LPA). Once an application is made, the Authority personnel must inspect the trees, and make a decision within a statutory eight-week period as to whether work can go ahead. If no decision is made within the eight weeks period, the appellant can appeal to the Office of the Deputy Prime Minister for non-determination. If the Local Authority (LA) refuses the application the appellant still has the right to appeal.

If a tree protected by a Preservation Order is either killed or wilfully destroyed, the owners of the tree, and the contractor who did the work, can both be prosecuted. The fines for killing or wilfully destroying a tree can be high, i.e. the current maximum is £20,000 per tree, and there is an automatic requirement to re-plant. The current maximum for minor unlawful infringements, such as pruning, is £2,500.

Trees which are dead, dying, or dangerous are exempt from the legislation, although if such trees are removed, the onus on proving they fell into one of these categories lies with the tree owner. Whenever possible it is strongly recommended that the LA be given at least five days' notice before any work on such trees is carried out.

Trees in a conservation area that are already protected by a TPO are subject to the normal procedures and controls for any tree covered by such an Order.

Trees in a conservation area that are not protected by a TPO are protected by the provision in Section 211 of The Town and Country Planning Act (1990). These provisions require people to notify the LPA, using a 'section 211 notice', six weeks before carrying out certain works on such trees, unless an exception applies. The works may go ahead before the end of the six-week period if the LPA gives consent. This notice period gives the Authority an opportunity to consider whether to make an Order on the tree.

3.0 Methodology

The methodology set out below is a detailed summary of the suggested approach to tree assessment as described in British Standard 5837:2012. This Report has applied the methodology to all significant individual trees or groups of trees present at or near to the Site. Trees below 15 cm trunk diameter were generally excluded from the survey. All floral names follow the nomenclature of Stace (2010).

3.1 Trees

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. Where development is to occur, the standard provides guidance on the approach needed to decide which trees are appropriate for retention, and the means for protecting these trees during the development (including demolition and construction works) and the means of incorporating trees into the developed landscape.

Trees on or adjacent to 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 Table 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. This assists informal decisions concerning which trees should be removed or retained should development occur. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below).

Categories A, B and C cover trees that should be a material consideration in the development process, each with three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural (nature conservation) values. Category U trees may 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. They are for this reason not considered as being significant within the planning process. In assigning trees to the A, B or C categories, the presence of any serious disease or tree-related hazard is taken into account. If the disease is considered fatal and/or irremediable, or likely to require sanitation for the protection of other trees it may be categorised as U with a recommendation for work or even removal, even if they are otherwise of considerable value.

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) and may comprise:

- ▲ Trees which are particularly good examples of their species, especially rare or unusual, or essential components of groups or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue);
- ▲ Trees, or groups of trees, 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 (e.g. avenues or other arboricultural features assessed as groups); and
- ▲ Trees or groups of significant conservation, historical, commemorative or other value (e.g. Veteran or wood-pasture trees).

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) and may comprise:

- ▲ Trees that might be included in the high category but because of their numbers or slightly impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage), are downgraded in favour of the best individuals;
- ▲ Trees present in numbers such that they form distinct landscape features and attract a higher collective rating than they would as individuals. Individually these trees are not essential components of formal or semi-formal arboricultural features, or trees situated mainly internally to the Site and have little visual impact beyond the Site; and

- ▲ Trees with clearly identifiable conservation or other cultural benefits.

Category (C): Trees that could be retained but 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 and may comprise:

- ▲ Trees not qualifying in higher categories;
- ▲ Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value and or trees offering low or only temporary screening benefit; and
- ▲ Trees with very limited conservation or other cultural benefits.

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. They are for this reason not considered as being significant within the planning process. These trees will be in such a condition that any existing value would be lost within 10 years and which should in the current context be ignored or removed for reasons of sound arboricultural management. Trees within this category are:

- ▲ Trees that have a serious irremediable structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees;
- ▲ Trees that are dead or are showing signs of significant, immediate or irreversible overall decline; and
- ▲ Trees infected with pathogens of significance to the health and or/safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality.

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.

In the assessment particular consideration has been given to:

- ▲ The health, vigour and condition of each tree;
- ▲ The presence of any structural defects in each tree and its life expectancy;
- ▲ The size and form of each tree and its suitability within the context of the proposed scheme; and
- ▲ The location of each tree relative to existing Site features, e.g. its value as a screen or as a skyline feature.

Age class is assessed according to the age class categories referred to in BS 5837.

- ▲ Y: Young trees age less than 1/3 life expectancy;
- ▲ SM: Middle age trees 1/3 – 2/3 life expectancy;
- ▲ M: Mature trees over 2/3 life expectancy; and
- ▲ OM: Over mature – declining or moribund trees of low vigour.

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; and
- ▲ 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.

Major defects or diseases and relevant observations have also been recorded. Dead wood has been defined as the following:

Twigs and small branch material	-	Up to 5 cm in diameter.
Minor dead wood	-	5 cm to 10 cm in diameter.
Major dead wood	-	10 cm in diameter and above.

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.

3.2 Potential for Protected Species

Potential bat roost locations are described within this Report using the methodology as that recommended by the Bat Conservation Trust (BCT), see Collins J. (ed) (2016) in references (Appendix A). Each tree of significant size assessed within this survey has also been assessed for the potential to provide roosts for bats and the table in Appendix B includes reference to this.

3.3 Tree Plans and Tree Schedules

The extent and positions of significant individual trees or groups of trees close to the Site are shown on the Arboricultural Survey Plan (Figure 2). The Root Protection Areas (RPA) of the key trees of value identified for, or recommended for retention have been marked within the Constraints Plan (Figure 3) using the RPAs provided in the Tree Schedule within Table 1.

A summary that includes the trees identified on or near to the Site is included in the Tree Assessment Report detailing information on each group of trees. This is also provided in Table 1. Within the summary table maximum RPAs (m²) for estimated tree diameters have been included where appropriate, as well as a calculated corresponding radius of the circle for that RPA. The RPAs are formulated as described below and assist when designing layouts in relation to trees.

3.4 Root Protection Area

Below ground constraints to development are represented by the root plate around a tree, which needs protecting in order for the tree to be incorporated into a proposed scheme without adverse harm to the tree or structural integrity of any proposed foundation structures.

This area is illustrated by the RPA and is calculated according to the formula set out in BS 5837:(2012). This area is equivalent to a circle with a radius 12 x the stem diameter for single stem trees or the basal diameter for trees with more than one stem arising less than 1.5 m above ground level.

$$\text{RPA (m}^2\text{)} = (\text{stem diameter (mm)} \times 12 / 1000)^2 \times 3.142$$

This figure should be capped to 707 m², that is, equivalent to a circle with a radius of 15 m, or a square with approximately 26 m sides

Taken from Table 2: Calculating the RPA, BS 5837 (2005).

3.5 Limitations to the Survey

There were no limitations regarding access at the time of the survey.

4.0 Results

4.1 Data Search

The results of the desk search undertaken on Cherwell District Council website on 08/01/2021 indicates that all trees within the proposed development Site are outside of any Conservation Area. No trees on-Site nor on land adjacent to the Site are covered by a TPO.

4.2 Survey Details

The tree inspection took the form of a walkover inspection completed by Catherine Bywood on 11th January 2021. Each individual mature, semi-mature or young tree of significance that could be impacted on by any proposed development was identified and visually inspected and classified. The trees identified during the survey at the Site have been individually noted and identified within this Report and are shown in the Tree Survey Plan within Figure 2, and within the Photograph Section of this Report (Appendix C).

4.3 Mature, Semi-Mature and Young Trees

A total of 19 trees and four tree groups have been identified and assessed as part of the tree survey. One Tree Group (TG) lay within the Site boundary whilst the remaining groups and individual Trees (T) border the Site.

4.3.1 Species and their Arrangement in the Landscape

There are a limited range of tree species on, and immediately adjacent to, the Site, with no dominant species. London plane *Platanus x hispanica*, sycamore *Acer pseudoplatanus*, Norway maple *Acer platanoides*, ash *Fraxinus excelsior*, field maple *Acer campestre*, Lombardy poplar *Populus nigra* 'Italica' and lime *Tilia* sp. are present in multiple numbers. The following species were only recorded within TG12: hawthorn *Crataegus monogyna*, holly *Ilex aquifolium*, cherry *Prunus* sp., rowan *Sorbus aucuparia* and elder *Sambucus nigra*.

A single tree group lies within the south-east of the Site. A series of individual trees and a group of ash border and overhang the Site from adjacent to a public footpath to the south. Just beyond the western boundary are a series of individual trees planted on a sloped embankment and within an area of shrub planting. Just beyond the eastern boundary corner lies a single tree group which continues northwards parallel to Southam Road.

4.3.2 Height and Significance in the Landscape

The tallest trees recorded were the five Lombardy poplar adjacent to the southern boundary which all stood at approximately 25 m, and are prominent within the surrounding landscape, particularly given their position near Southam Road. Similarly, by their position close to Southam Road, TG20 at an average of 15 m, is noticeable at the Site entrance, whilst TG23 extending along Southam Road contribute to the street scene.

At 18 m, 16 m and 15 m, T13, TG14 and T15 respectively are noticeable from within the Site and also the land to the south and whilst TG12 only stands at an average of 6 m it provides a valuable screen to the south separating the Site from the footpath.

Beyond the western boundary T1, T2 and T3 at 14 m, stand elevated above the Site due to their position at the top of an embankment, whilst noticeable from within the Site due to the surrounding low level car parking their visibility from the A422 to the west is limited. Whilst only standing at 8 m or 9 m T6 – T11 are also highly noticeable from the Site due to their position at the top of a steeply sloped grass embankment with extensive car parking beyond. All the aforementioned trees are placed within Category B (see Table 1).

Both T4 and T5 to the west are both less prominent in the landscape than T7-T11, T4 due to its position on a lower embankment and height of only 8 m and T5 due to its limited canopy spread. Whilst standing at 15 m T15 was in a poor condition with damage at the base and fungal growth present such that its long-term viability is anticipated to be limited. At 14 m T21 has limited prominence due to its elevation and limited canopy becoming lost amongst the adjacent group and surrounding trees. These trees have all been placed within Category C.

If retained, these trees will require protection measures to ensure no impact occurs as a result of any development.

4.3.3 Age and Condition

The on-Site tree group is semi-mature, whilst off-Site trees range from mature to young. None of the trees within the Site boundary show signs of past management, however, off-Site trees to the south in particular have been subject to management, including the severing of ivy and crown lifting. The on-Site tree group is in fair condition. Off-Site to the west, T4 is in poor condition due to its poor canopy spread, whilst T15 featured damage towards the base of the stem creating a cavity such that it was also assessed as being in a poor condition.

4.3.4 Environmental Condition

According to aerial photographs the Site has been used for industrial purposes for at least the last 16 years such that it is surmised the root systems of trees bordering the Site have not been damaged by on-Site working practices due to the areas of hardstanding protecting roots that may extend into the Site. The access road entering the Site from the south-east is recently constructed in association with the new Waitrose superstore adjacent to the north-eastern Site boundary. An Arboricultural Impact Assessment (reference 8912_AIA.001) produced by Aspect Arboriculture in March 2015 for the superstore and road construction features a Tree Protection Plan and details how the road was to be built above the existing soil level to protect T16-T18 whilst the junction with Southam Road was to be dug by hand within the RPA. As such it is anticipated the works were completed without causing impacts to the root systems of these trees. The trees on-Site and immediately adjacent to the Site are not in an exposed position, having been protected from prevailing winds by the on-Site warehouse and surrounding buildings.

Groundwater conditions are not assessed to be a significant factor in present or future growth or health of trees since the generally flat Site appears to be well drained and this situation will probably improve further following completion of any development. The trees on the embankment beyond the western boundary have adapted to their conditions by the presence of surface roots to aid stability.

4.3.5 Bat Roost Potential

Overhanging the southern boundary T13 and TG14 were assessed as offering low BRP due to the presence of ivy cladding which would offer limited roosting potential in itself but may be obscuring other damage that could provide potential. The damage on the stem of T15 also had created a cavity that despite its position within 1 m of ground level could also provide low BRP.

4.4 Tree Schedule

Table 1 – BS 5837:2012 Tree Schedule

Tree Number	Tree Species		Measurements				Crown (m)				Tree Condition							Management		
	Common Name	Latin Name	Maturity	Height (m)	Stems	Stem Diameter (mm)	Average Height	N	E	S	W	Roots	Stem	Crown	Comments	Structural	Life Expectancy (yrs)	Category	RPA (m)	Works
T1	London plane	<i>Platanus x hispanica</i>	SM	14	S	Est. 400	3	6	6	6	6	No visual defects	Single stem, vertical	Rounded, balanced canopy	Thin ivy cladding on main stem	F	>40	B2	4.8	
T2	Sycamore	<i>Acer pseudoplatanus</i>	Y	14	S	Est. 300	4	2	2	4	4	No visual defects	Single stem, vertical	Rounded, balanced canopy	Limited canopy due to T1 and T3	F	>40	B2	3.6	
T3	London plane	<i>Platanus x hispanica</i>	SM	14	S	Est. 425	3	6	6	6	6	No visual defects	Single stem, vertical	Rounded, balanced canopy, previously crown lifted to 4 m to east	Thin ivy cladding on main stem	F	>40	B2	5.1	
T4	Field maple	<i>Acer campestre</i>	Y	8	S	325	3	3	3	3	3	Exposed surface roots, particularly to the east	Single stem, vertical	Rounded, balanced canopy	Tree tag 003295	F	20-40	C2	3.9	
T5	Ash	<i>Fraxinus excelsior</i>	Y	8	S	150	4	3	2	1	2	No visual defects	Single stem, vertical	Sparse canopy	Tree tag 003296	P	20-40	C2	1.8	
T6	Norway maple	<i>Acer platanoides</i>	Y	8	S	275	3	4	4	4	4	Surface roots present on all aspects	Single stem, vertical	Rounded, balanced canopy	Tree tag 003297	F	20-40	B2	3.3	
T7	London plane	<i>Platanus x hispanica</i>	Y	8	M/S	175 x 2, 200, 250	3	5	5	5	5	Surface roots visible to north and east	Multi-stemmed at 1 m	Spreading canopy, balanced	Tree tag 003298	F	20-40	B2	4.8	
T8	Norway maple	<i>Acer platanoides</i>	Y	8	S	300	3	4	4	4	4	Surface roots present down the slope to north-east	Single stem, vertical	Rounded, balanced canopy	Tree tag 003299	F	20-40	B2	3.6	
T9	Norway maple	<i>Acer platanoides</i>	Y	8	S	350	2	4	4	4	4	Surface roots present to the east	Single stem, vertical	Rounded, balanced canopy	Tree tag 003300	F	20-40	B2	4.2	
T10	Ash	<i>Fraxinus excelsior</i>	Y	9	S	300	2	3	3	3	3	No visual defects	Single stem, vertical	Narrow canopy balanced	Tree tag 003301. Minor ivy cladding to stem base.	F	20-40	B2	3.6	
T11	Norway maple	<i>Acer platanoides</i>	Y	10	S	325	2	4	4	4	4	Exposed surface roots down slope to north	Single stem, vertical	Rounded, balanced canopy	Tree tag 003302	F	20-40	B2	3.9	
TG12	Hawthorn Field maple	<i>Crataegus monogyna</i>	Y/SM	Av. 6	S /	Av. 250	1	2	2	2	2	No visual defects but in places ivy	Single and multi-stemmed specimens,	Canopy reads as one, heavy ivy cladding	Occasional larger specimens	F	20-40	B2	3.0	Sever and remove ivy

	Holly Cherry Rowan Ash Elder	<i>Acer campestre Ilex aquifolium Prunus sp. Sorbus aucuparia Fraxinus excelsior Sambucus nigra</i>			M S								covers the ground limiting visibility	most are vertical but a minority lean north	and coverage throughout	present, self- set immature trees amongst group				
T13	Ash	<i>Fraxinus excelsior</i>	M	18	M S	Est. 700 x 3	4	8	8	8	8		No visual defects but growing close to adjacent path	Trifurcated at base, vertical	Balanced canopy, scattered deadwood and ivy cladding present	Thick ivy cladding and potential obscuring of features, low BRP. Scattered deadwood at base.	F	20- 40	B2	14.4
TG14	Ash	<i>Fraxinus excelsior</i>	SM	16	S / M S	Av. 600	4	8	8	8	8		No visual defects but growing close to adjacent path	Western tree, single stem leans west. Central bifurcated and base and eastern tree leans north- east	Previously crown lifted to 4 m	Ivy clad stems, low BRP. Ivy previously severed to 3 m on eastern stem. Central tree largest at 600 x 2 DBH. Scattered deadwood at base.	F	20- 40	B2	7.2
T15	Ash	<i>Fraxinus excelsior</i>	SM	15	S	625	5	6	5	5	4		No visual defects	Single stem, vertical. Leans north- east.	Rounded, balanced canopy	Damage present on stem from ground to 1 m creating cavity and fungal growth present. Low BRP.	P	<20	C2	7.5
T16	Lombardy poplar	<i>Populus nigra 'Italica'</i>	M	25	S	1350	4	5	5	5	4		No visual defects, growing close to footpath to south and new gabion basket to north	Single stem, vertical	Compact, narrow canopy	Previously ivy clad but severed at 2 m	F	>40	B2	15.0
T17	Lombardy poplar	<i>Populus nigra 'Italica'</i>	M	25	S	1050	6	3	3	3	4		No visual defects, growing close to footpath to south and new gabion basket to north	Single stem, vertical	Compact, narrow canopy	Previously crown lifted to 6 m to south	F	>40	B2	12.6

T18	Lombardy poplar	<i>Populus nigra</i> 'Italica'	M	25	S	1300	6	3	3	3	4	No visual defects, growing close to footpath to south and new gabion basket to north	Single stem, vertical	Compact, narrow canopy	Ivy previously severed at 2 m	F	>40	B2	15.0	
T19	Lombardy poplar	<i>Populus nigra</i> 'Italica'	M	25	S	875	14	3	2	2	2	No visual defects but growing close to footpath and boundary fence	Single stem, vertical	Compact, narrow canopy	Close to boundary fence and borders footpath	F	>40	B2	10.5	
TG20	Sycamore Lime	<i>Acer pseudoplatanus</i> <i>Tilia</i> sp.	SM	Av. 15	S / M S	Av. 450	Av. 4	6	6	3	4	No visual defects	Single stems or multi-stemmed below 1 m, vertical	Canopy reads as one, limited to south due to off-Site trees	Sparse ivy cladding over stems, negligible BRP	F	20-40	B2	5.4	Sever ivy
T21	Sycamore	<i>Acer pseudoplatanus</i>	SM	14	S	325	8	3	3	3	3	No visual defects	Single stem, slight lean to north and bifurcates at 2 m	Canopy previously lifted to 8 m, sparse	Close to boundary fence and borders footpath	P	20-40	C2	3.9	
T22	Lombardy poplar	<i>Populus nigra</i> 'Italica'	M	25	S	900	6	3	5	0	1	No visual defects	Single stem, vertical. Minor bark damage at base of stem to south	Compact, narrow canopy	Close to footpath and fence and borders footpath	F	>40	B2	10.8	
TG23	Lime	<i>Tilia</i> sp.	SM	Av. 12	S	Av. 300	2	4	4	4	4	No visual defects	Single stem, vertical	Canopy reads as one	Part of a larger group along Southern Road	F	>40	B2	3.6	

Table 2 – Key to Tree Schedule

Measurements	Age – Class	Overall Condition	BS 5837 2005 : Cascade Chart for Quality Assessment/Retention Category	Symbols:
MS – Multi-stemmed	Y - Young	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	EM – Early-mature	P – Poor	C – Low	> = greater than
Crown – Crown spread in metres	M – Mature	D – Dead	R – Trees for Removal	
TD - Trunk division (height in metres)	V - Veteran 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).				

5.0 Tree Management

5.1 Arboricultural Assessment

In the south-east of the Site and adjacent to the Site boundaries are a number of tree groups and individual trees that could be impacted by any proposed re-development. It is expected the on-Site trees can be retained and incorporated into the landscaping scheme of the proposals.

It appears no management has taken place to the trees present on-Site, although, trees to the south have previously been crown lifted over the footpath and ivy has been severed on a small number of trees. Ivy is beginning to extend up the stems of TG20 and this should be controlled to prevent it taking over. To ensure that the root areas and canopy extremities of the individual trees and the tree groups that may be retained are not damaged, a Constraints Plan has been prepared to show the locations where protective fencing should be erected for any trees selected for retention (see Figure 3). Any tree surgery required is best carried out towards the conclusion of the development so that, if necessary, any known root damage can be corrected by the appropriate crown thinning to restore root /shoot balance.

Five trees were assessed as offering roosting potential, T13 and the three trees comprising TG14 were assessed as offering low BRP due to dense ivy cladding. Damage at the base of T15 was also assessed as offering low BRP due to the presence of a cavity.

It is considered that the Site would benefit from native deciduous tree planting along the southern edge and within the car park to the north-east to provide additional screening and complement the surrounding landscape.

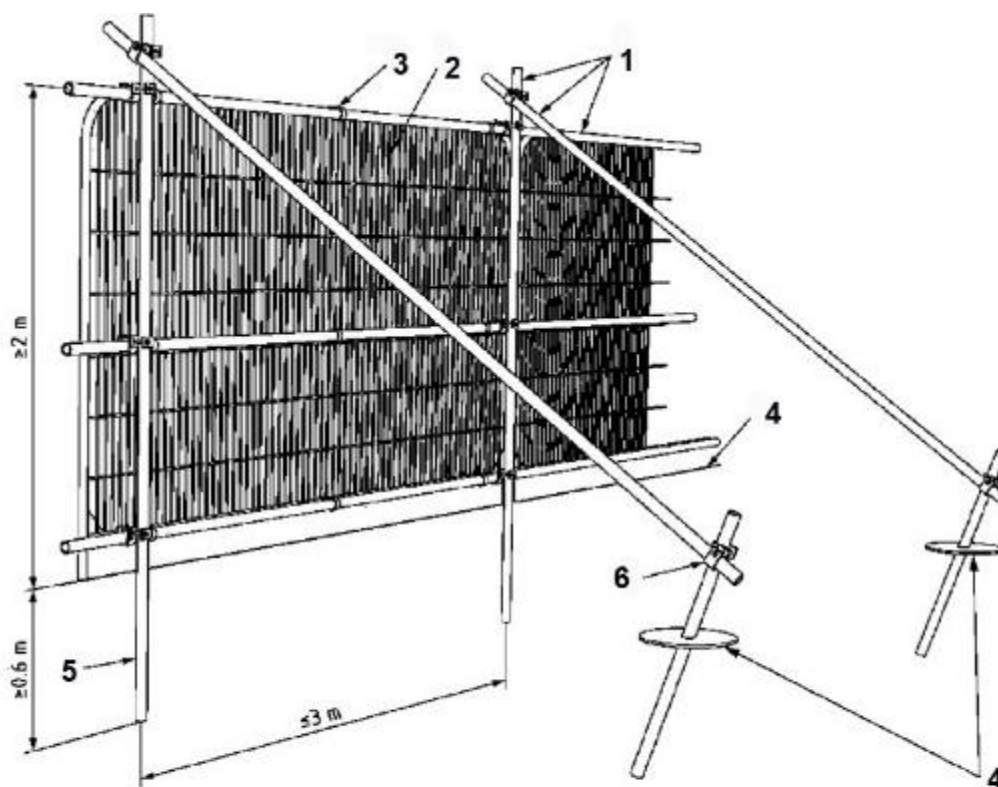
5.2 Recommendations

Recommendation 1 (Adequate Tree Protection)

Those trees identified within any development plan for retention will need to be adequately protected during any approved development works. 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 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 would 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 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 arboriculturist 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;



1. Standard scaffold poles
2. Heavy Gauge 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

- ▲ 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 two 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;
- ▲ It may be appropriate on some sites to use temporary site offices as components of the protection barriers;
- ▲ 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 10 m of a tree bole. No concrete mixing should be done within 10 m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree;

- ▲ No fires should be lit where flames are anticipated to extend to within 5 m 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 arboriculturist;
- ▲ 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; and
- ▲ All of the above precautionary measures should be applied to minimise the effect of any damage to long-term tree health and safety.

Recommendation 2 (Bats)

Low BRP Trees

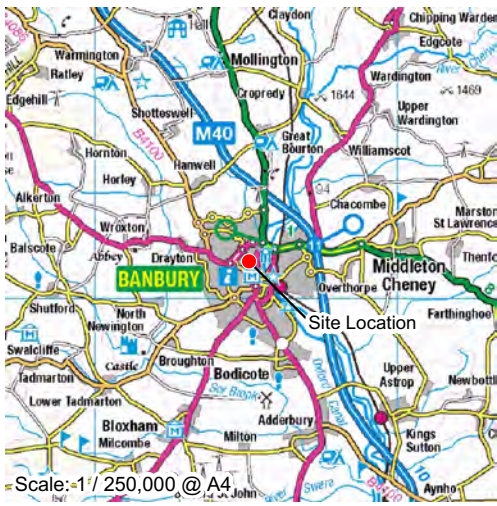
- ▲ Any proposed management works to the five overhanging trees assessed as having low BRP should be completed under a method statement which could include a single dawn survey completed during the active bat season (April-October, inclusive) on the morning prior to the works being undertaken, or;
- ▲ Alternatively, a licenced bat ecologist trained to use specialist tree climbing equipment could undertake a thorough inspection of the potential roost features immediately prior to works commencing.

6.0 Limitations of the Tree Survey

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Environmental Consultant.

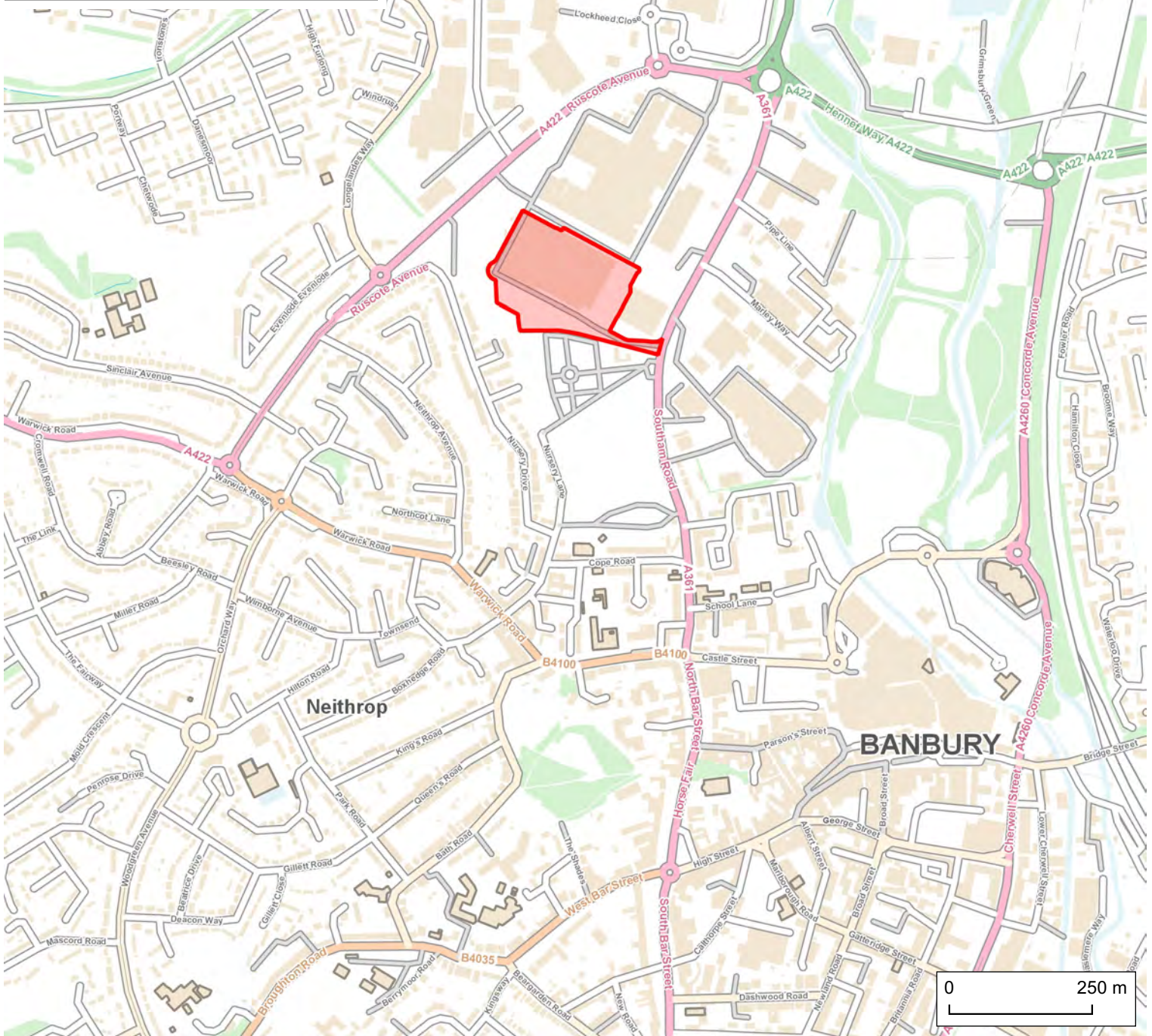
This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1.1 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

Figure 1 – Site Location Map



LEGEND

Site Boundary



Scale: 1:10000 @ A4

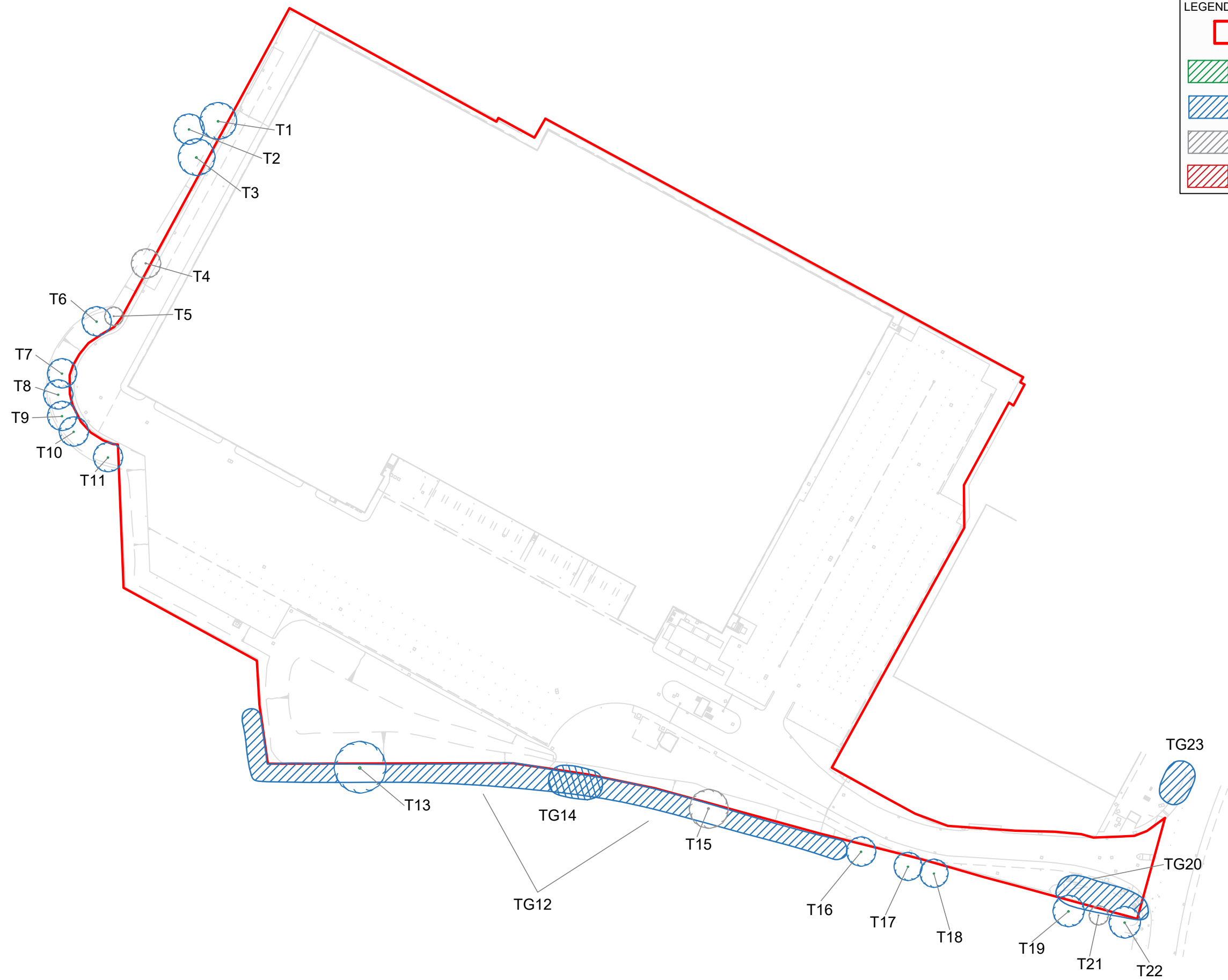
Service Layer Credits: Contains OS data @ Crown Copyright and Database Right 2019








TITLE:
Site Location Map
 Southam Road, Banbury
 Oxfordshire

DRAWN BY: LM	SCALE (@A4): 1:10000	PROJECT NO: 20-1787
CHECKED BY: CB	REVISION: 0	FIGURE NO: 1
DATE: 15 January 2021		

Figure 2 – Tree Survey



LEGEND	
	Site Boundary
 Tx/TGx	Category A: High value retention most desirable
 Tx/TGx	Category B: Moderate value retention desirable
 Tx/TGx	Category C: Lower value could be retained
 Tx/TGx	Category U: For removal

Site Plan Provided by Client



TITLE:
Tree Survey
Banbury 200, Southam Road
Banbury

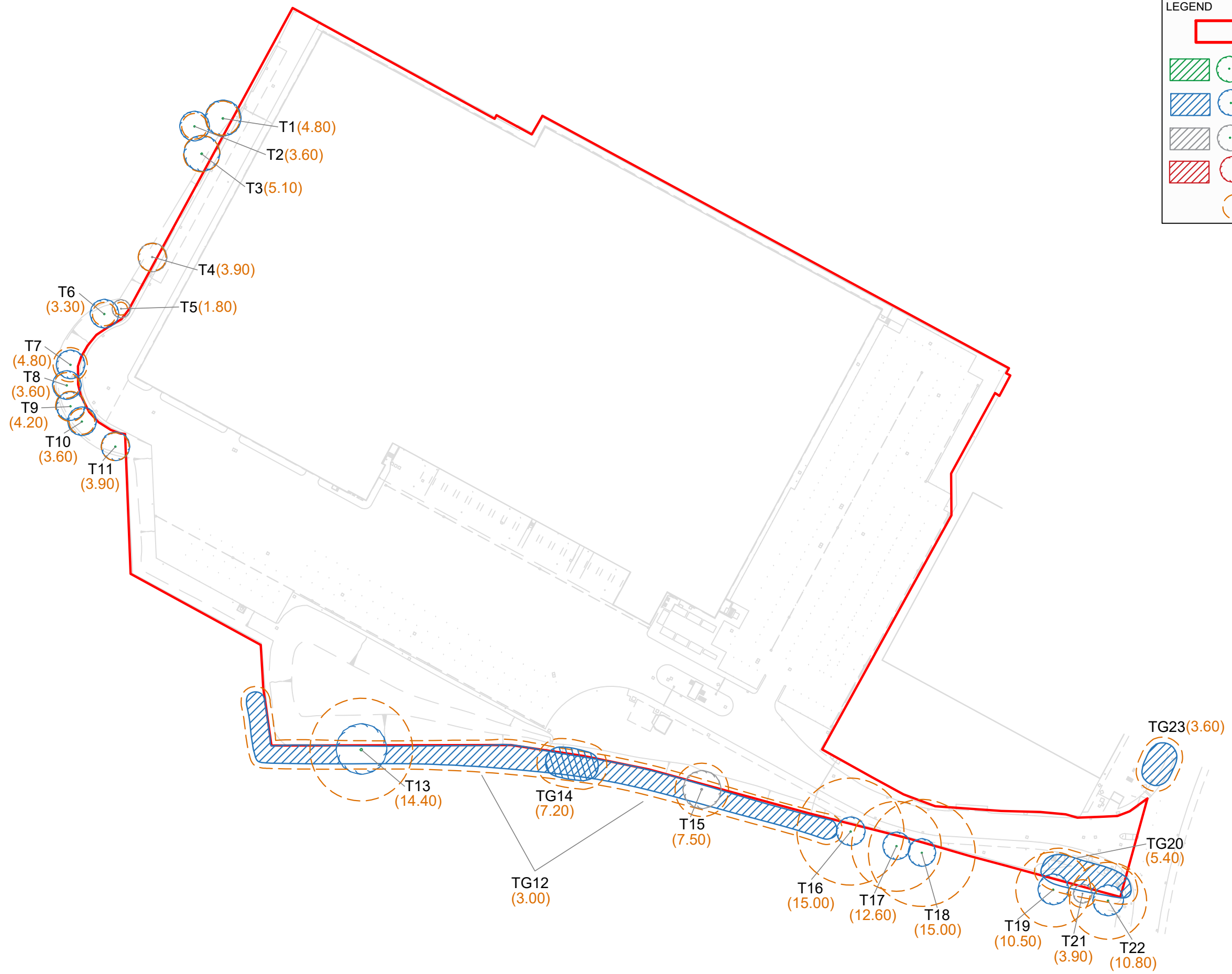
DRAWN BY: KE	SCALE: Not to Scale
CHECKED BY: CB	REVISION: 1
DATE: 20 January 2021	

PROJECT NO: 20-1787.01
FIGURE NO: 2

Figure 3 – Tree Constraints Plan



LEGEND	
	Site Boundary
	Category A: High value retention most desirable Tx/TGx
	Category B: Moderate value retention desirable Tx/TGx
	Category C: Lower value could be retained Tx/TGx
	Category U: For removal Tx/TGx
	RPA: Root Protection Area (m)



Site Plan Provided by Client



TITLE:
Tree Constraints Plan
 Banbury 200, Southam Road
 Banbury

DRAWN BY: KE	SCALE: Not to Scale
CHECKED BY: CB	REVISION: 1
DATE: 20 January 2021	

PROJECT NO: 20-1787.01
FIGURE NO: 3

Appendix A – References

References

BSI Publication BS 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations.

BSI Publication BS 5837:2005 Trees in Relation to Construction - Recommendations.

Collins, J. (ed.) (2016) Bat surveys for Professional Ecologists: Good practice guidelines (3rd edition). The Bat Conservation Trust, London.

Stace, C. (2010). *New Flora of the British Isles 3rd edition*. University Press, Cambridge.

Appendix B – Guidance on Assessing the Potential Suitability of Development Sites to Support Bats

Guidance on Assessing the Potential Suitability of Development Sites to Support Bats

(adapted from Collins, J. (ed)).

Suitability	Description	
	Roosting	Commuting and Foraging
Negligible	<p>An inspected structure or tree which is considered to have no features of importance for roosting bats.</p> <p>No further constraints apply to the method or timing of proposed works.</p>	<p>Negligible habitat features on-Site to support commuting or foraging bats</p>
Low	<p>A structure with at least one or more features suitable to support opportunistic individual bats. However, inadequate space, shelter, protection and conditions, and the low suitability of surrounding habitats means that it is unlikely to be used as a maternity or hibernation roost site.</p> <p>A tree of adequate age and stature to support potential roosting features, however, either no features, or only features of limited potential recorded from the ground.</p>	<p>Habitat with potential to support low numbers of commuting bats due to its quality and connectivity. For example, a gappy hedgerow or unvegetated stream that is isolated from the surrounding landscape.</p> <p>Alternatively, suitable but isolated habitats suitable to support low numbers of foraging bats such as a lone tree or a patch of scrub.</p>
Moderate	<p>A structure or tree with one or more potential roost sites that are of adequate size, shelter and protection, with suitable conditions and surrounding habitat to support a bat roost not of high conservation status (with respect to roost type not individual species conservation status).</p>	<p>Linear habitat continuity connecting to the wider landscape offering potential to support commuting bats, such as rows of trees and scrub or linked back gardens.</p> <p>Habitat such as trees, scrub, grassland or a waterbody with connectivity to the wider landscape offering foraging opportunities for bats.</p>
High	<p>A structure or tree with one or more potential roost sites that are suitable for use by large numbers of bats on a regular basis and for long periods of time due to their size, shelter, protection, conditions and the surrounding habitat.</p>	<p>Continuous high-quality habitat with strong connectivity to the wider landscape that is likely to be used by commuting bats on a regular basis, such as flowing waterbodies, hedgerows, rows of trees and woodland edges.</p> <p>High quality habitat with strong connectivity to the wider landscape that is likely to be regularly used by foraging bats, such as broadleaved woodland, tree-lined watercourses and grazed parkland.</p> <p>Site is close to, and connected to, known roost sites</p>

Appendix C – Site Photographs

Site Photographs



Photograph 1 – Tree (T) 1



Photograph 2 – T2



Photograph 3 – T3



Photograph 4 – T4



Photograph 5 – T5 (right) and T6 (left)



Photograph 6 – T7



Photograph 7 – T8



Photograph 8 – T9



Photograph 9 – T10



Photograph 10 – T11



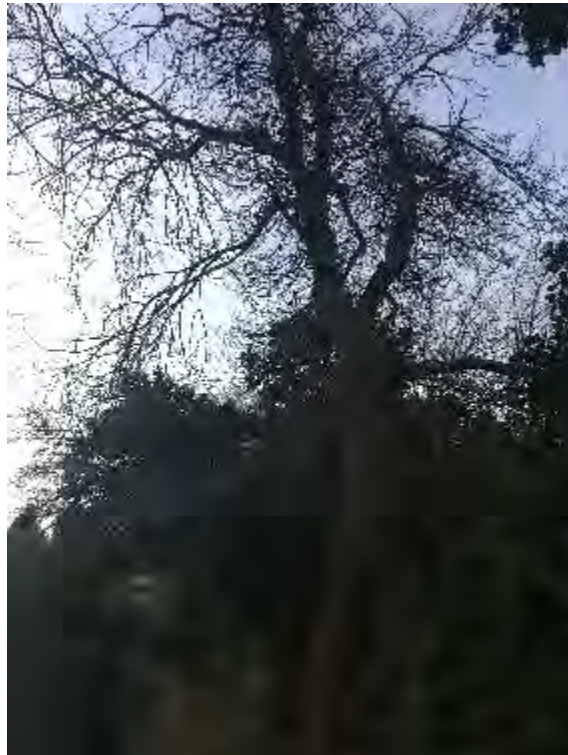
Photograph 11 – TG12



Photograph 12 – T13



Photograph 13 – TG14



Photograph 14 – T15



Photograph 15 – T16



Photograph 16 – T17 and T18



Photograph 17 – T19



Photograph 178– TG20



Photograph 19 – T21



Photograph 20 – T22 (Centre)



Photograph 21 – TG23