BS 5837:2012 Tree Survey

Banbury 200 Site, Southam Road, Banbury, OX16 3AE

Presented to **Lysander Associates Ltd.**

Issued: October 2021

Delta-Simons Project No. 21-1553.02

deltasimons

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Report Details

Client	Lysander Associates Ltd.
Report Title	BS 5837:2012 Tree Survey
Site Address	Banbury 200 Site, Southam Road, Banbury, OX16 3AE
Project No.	21-1553.02
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Quality Assurance

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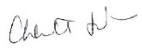
3	Final	20th October 2021				
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About us

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Executive Summary

Purpose	Delta-Simons Environmental Consultants Ltd was instructed by Lysander Associates Ltd. ('the Client'), to undertake a Tree Survey to BS 5837:2012 standard of an area of land known as Banbury 200 west of Southam Road in Banbury, Oxfordshire ('the Site'). The survey of the east of the Site was undertaken on 11th January 2021 and the west of the Site on 29th March 2021. The survey was undertaken to inform a planning application for the Site.
Current Site Status	The majority of the Site comprises an industrial warehouse with associated hardstanding car parking, access and service yard. Soft landscaping comprised areas of grassland at the north-western and north-eastern extents of the Site and along the southern Site boundary. Areas of shrub planting were present to the east of the warehouse and around the car park in the west. Scattered trees were located in the north-west of the Site, within the southern edge and along the grassland slope through the Site centre.
Proposed Development	It is understood that the proposed development is for the use of the Site for the storage of operational vehicles, together with elevational and site alterations, associated parking, welfare facilities, vehicle barrier and associated infrastructure.
Results	A total of 36 trees and nine 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 16/07/2021 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	<u>Recommendation 1 (Adequate Tree Protection)</u> Those trees identified within the proposed development plan for retention will need to be adequately protected during any construction 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). Prior to any construction or development work proceeding, the Root Protection Area (RPA) of individual trees to be retained should be marked out. Marking out should be completed by a competent person with arboricultural expertise. All trees that could be impacted 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 Assessment.
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.	

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1.0 Introduction

1.1 Purpose and Scope of the Survey

Delta-Simons Environmental Consultants Ltd was instructed by Lysander Associates Ltd. (the 'Client') to undertake an Arboricultural Survey to BS 5837:2012 standard. The survey was undertaken of land west of Southam Road in Banbury, Oxfordshire (hereafter referred to as 'the Site'). The survey of the east of the Site was undertaken on 11th January 2021 and the west of the Site on 29th March 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 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.

The Site location and the area surveyed are shown in Figure 1.

1.2 Site Description

The Site is centred at Ordnance Survey (OS) grid reference SP 45110 41443, to the north-west of Banbury in Oxfordshire. The Site covers an area of 5.45 hectares (ha) and is dominated by an industrial warehouse with associated hardstanding car parking, access and service yard. Soft landscaping comprised areas of grassland at the north-western and north-eastern extent of the Site and along the southern Site boundary. Areas of shrub planting were present to the east of the warehouse and around the car park in the west. Scattered trees were located in the north-west of the Site, within the southern edge and along the grassland slope through the Site centre.

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, while a drain lies to the north-west. Beyond the eastern boundary lies a Waitrose supermarket with Southam Road beyond. To the south is a cemetery and residential housing. West of the Site is a continuation of the car park area with Ruscote Avenue beyond.

The Site layout and area surveyed is shown in Figure 2.

1.3 Proposed Development

It is understood that the proposed development is for the use of the Site for the storage of operational vehicles, together with elevational and site alterations, associated parking, welfare facilities, vehicle barrier and associated infrastructure.

2.0 Legislation and Policy

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 week 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.

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:

a) The health, vigour and condition of each tree;

b) The presence of any structural defects in each tree and its life expectancy;

c) The size and form of each tree and its suitability within the context of the proposed scheme; and

d) 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 Tree Plans and Tree Schedules

The extent and positions of significant individual trees or groups of trees on or adjacent 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 this Report detailing information on each group of trees, which is summarised in Table 1. Within the summary table maximum RPAs (m^2) 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.

3.3 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.

RPA (m^2) = (stem diameter (mm) x 12 / 1000) ^{2} x 3.142

This figure should be capped to 707 m^2, 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).

3.4 Limitations to the Survey

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

4.0 Results

4.1 Desk Study

The results of the desk search undertaken on Cherwell District Council website on 16/07/2021 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 for the eastern half of the Site, and 29th March 2021 for the western half. Each individual mature, semi-mature or young tree of significance that could be impacted upon 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 B).

4.3 Trees

A total of 36 trees and nine tree groups have been identified and assessed as part of the tree survey. The majority of trees lay within the Site with the exception of five Tree Groups (TG), present beyond the southern, western and eastern boundaries, and 13 individual Trees (T) with the majority of these to the south of the Site and one to the west.

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,* whitebeam *Sorbus aria,* Leyland cypress *x Cuprocyparis leylandii,* maple *Acer* sp., silver birch *Betula pendula,* elder *Sambucus nigra*, cherry *Prunus* sp., false acacia *Robinia pseudoacacia,* field maple *Acer campestre,* Lombardy poplar *Populus nigra* 'Italica' and lime *Tilia* sp. are present in multiple numbers. The following species are represented as single specimens or within a single tree group: Hawthorn *Crataegus monogyna,* yew *Taxus baccata,* hornbeam *Carpinus betulus,* holly *Ilex aquifolium* and rowan *Sorbus aucuparia.*

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 (T3, T5-T8) 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, TG2 at an average of 15 m, stands out at the Site entrance, whilst the trees within TG1 extending along Southam Road contribute to the street scene.

At 18 m and 16 m, TG11 and T12 respectively, are visible both from within the Site and also the land to the south, and whilst TG9 only stands at an average of 6 m, it provides a valuable screen to the south separating the Site from the footpath.

Off-Site to the south-west T17 at 16 m, T19 at 12 m and T18 at 10 m offer a limited screening to the Site, with T18 and T19 contributing more so during the summer months when they are in leaf, adding to the local amenity value with the adjacent residential properties and the footpath bordering the Site. In the south of the Site, T15 and T16 at 10 m are not tall trees but due to the lack of other features in this area of the Site are visible, as well as from the adjacent footpath. At 10 m, T13 overhanging the south-eastern corner is prominent due to the lack of other noticeable tall features.

Ranging between 14 and 18 m, T22, T23, T24, TG25, TG26, T27, T28, T29, T31, T32 and T33, along with TG30 at 10 m, are prominent in the north due to the flat nature of the Site, whilst T22-TG30 are particularly visible from Ruscote Avenue.

Along the embankment dividing the Site north to south T35, T36 and T37 at 14 m, stand elevated above the east of the Site due to their position at the top of an embankment and at the edge of the extensive hardstanding car parking. Whilst only standing at 8 m or 9 m T40 – T45 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 T38 and T39 to the west are both less prominent in the landscape than T40-T45, T38 due to its position on a lower embankment and height of only 8 m and T39 due to its limited canopy spread. Whilst standing at 15 m, T10 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 T4 has limited prominence due to its elevation and limited canopy becoming lost amongst the adjacent group and surrounding trees.

At an average of 6 m, TG14 has a limited visible impact amongst an overgrown area of bramble scrub, although it is located close to the boundary and adjacent footpath. Also standing at 8 m, TG20 is not a tall group and their main impact in the landscape is from the dense ivy cladding and growth in the canopy offering evergreen cover. In the north-east, T34 offers very little to the surrounding landscape due to its position close to the on-Site building and the effect of screening from TG30-T33. These trees have all been placed within Category C.

4.3.3 Age and Condition

All trees present within the Site are semi-mature or young whilst off-Site to the south T17 and T3, T5, T6, T7 and T8 were mature specimens. Previous crown lifting was noted on a limited number of trees within the boundary including to T36, T37, T22, T29, T31 and T32 to provide clearance. On the eastern aspect TG30 has also been cut back to the fenceline up to 2.5 m to create space on the footpath. Off-Site trees have also been subject to management, including the severing of ivy on T6 and T8 and crown lifting to T4, T7, TG11, T17 and T21.

All on-Site trees appear to be in fair condition, other than T34 which is growing in a poor position at the edge of a building, and T39 which supported a sparse canopy. Off-Site to the south, T10 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 previous 16 years. Recent works have taken place to install a new boundary fence which extends close to T43 and T13 and there is the potential that this has caused disturbance within the RPA of both trees to create the post holes.

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 T6-T8 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.

Within the remainder of the Site and bordering the boundaries, it is surmised the root systems of trees have not been damaged by on-Site working practices due to the areas of hardstanding protecting roots that may extend into the Site.

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 Site appears to be well drained and this situation will probably improve further following completion of any development. The trees on the embankment west of the warehouse (T35-T45) have adapted to their conditions by the presence of surface roots to aid stability.

4.4 Tree Schedule

Table 1 – BS 5837:2012 Tree Schedule

	Tree Species		Measurements				Crown (m)					Tree Condition								Management
Tree Number	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
TG1	Lime	*Tilia* 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	
TG2	Sycamore Lime	*Acer pseudoplatanus Tilia* sp.	SM	Av. 15	S / MS	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
T3	Lombardy poplar	*Populus nigra* '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	
T4	Sycamore	*Acer pseudoplatanus*	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	
T5	Lombardy poplar	*Populus nigra* '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	
T6	Lombardy poplar	*Populus nigra* '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	
T7	Lombardy poplar	*Populus nigra* 'Italica'	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	

T8	Lombardy poplar	*Populus nigra* 'Italica'	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	
TG9	Hawthorn Field maple Holly Cherry Rowan Ash Elder	*Crataegus monogyna* *Acer campestre* *Ilex aquifolium* *Prunus* sp. *Sorbus aucuparia* *Fraxinus excelsior* *Sambucus nigra*	Y/ SM	Av. 6	S / M S	Av. 250	1	2	2	2	2	No visual defects but in places ivy covers the ground limiting visibility	Single and multi-stemmed specimens, most are vertical but a minority lean north	Canopy reads as one, heavy ivy cladding and coverage throughout	Occasional larger specimens present, self-set immature trees amongst group	F	20-40	B2	3.0	Sever and remove ivy
T10	Ash	*Fraxinus excelsior*	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.	P	<20	C2	7.5	
TG11	Ash	*Fraxinus excelsior*	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 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	
T12	Ash	*Fraxinus excelsior*	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. Scattered deadwood at base.	F	20-40	B2	14.4	
T13	Field maple	*Acer campestre*	SM	10	M S	Est. 400 x2, 300 x2	2	5	5	5	5	No visual defects	Multi-stemmed below 1 m, vertical	Spreading crown, balanced	Northern tree in group of smaller trees	F	20-40	B2	8.4	
TG14	Yew Willow Ash	*Taxus baccata* *Salix* sp. *Fraxinus excelsior*	Y	6	S / M S	Est. Av. 75	1	1	1	1	1	Not visible amongst scrub	Yew multi-stemmed, willow single stems	Canopies limited due to surrounding bramble scrub		F	20-40	C2	0.9	
T15	Whitebeam	*Sorbus aria*	SM	10	S	475	3	4	4	4	4	No visual defects	Single stem, vertical	Rounded, balanced canopy	Located in kerbed planting area	F	20-40	B2	5.7	

T16	Whitebeam	*Sorbus aria*	SM	10	S	425	3	4	4	4	4	No visual defects, concrete strip 2 m to south	Single stem, vertical	Rounded, balanced canopy	Tag 003281	F	>40	B2	5.1	
T17	Leyland cypress	*X Cuprocyparis leylandii*	M	16	MS	Est. 500 x 2	0	6	6	6	6	No visual defects, growing close to garden	Multi-stemmed below 1 m, vertical	Canopy lifted to 7 m to east over garden, low and spreading to west at ground level	Located in grass verge at edge of residential estate	F	20-40	B2	8.4	
T18	Maple	*Acer sp.*	SM	10	S	325	3	3	3	3	3	Minor surface roots noted with former mower damage	Single stem, vertical	Rounded, balanced canopy	Located in grass verge at edge of residential estate	F	>40	B2	3.9	
T19	Maple	*Acer* sp.	SM	12	S	425	3	4	4	5	5	Minor surface roots noted with former mower damage	Single stem, vertical	Rounded, balanced canopy	Located in grass verge at edge of residential estate	F	>40	B2	5.1	
TG20	Elder Cherry	*Sambucus nigra Prunus* sp.	SM	8	S	Est. 300	0	3	3	3	3	No visual defects	Not visible amongst ivy but anticipated to be single stems, vertical	Canopy reads as one, heavily congested with ivy	Located in grass verge at edge of residential estate	F	20-40	C2	3.6	
T21	Maple	*Acer* sp.	SM	14	S	550	5	6	6	6	6	Raised roots noted surrounding tree and raised tarmac to east	Single stem, vertical	Rounded, balanced canopy. Previously crown lifted to 5 m to east.	Street tree	F	>40	B2	6.6	
T22	Silver birch	*Betula pendula*	SM	18	S	450	6	5	5	5	5	No visual defects	Single stem, vertical	Rounded, balanced canopy. Previously lifted to south to 4 m.		F	20-40	B2	5.4	
T23	False acacia	*Robinia pseudoacacia*	SM	18	S	450	5	5	5	4	4	No visual defects	Single stem, vertical. Epicormic growth at base.	Rounded, balanced canopy	Split on previously removed branch at 3 m to east. Tag 003258	F	>40	B2	5.4	
T24	False acacia	*Robinia pseudoacacia*	SM	18	S	Est. 600	4	5	5	5	5	Raised root to north-west with mower damage	Single stem, vertical	Rounded, balanced canopy	Tag 003257	F	>40	B2	7.2	
TG25	Maple	*Acer* sp.	SM	14	S	Av. 425	4	5	5	5	5	Minor surface roots	Single stems, vertical	Rounded, balanced canopies	Roadside trees	F	>40	B2	5.1	
TG26	Cherry London plane	*Prunus* sp. *Platanus x hispanica*	SM	Av. 14	S/	Av. 475	3	5	5	5	5	Minor surface roots	Mostly single stems,	Rounded, balanced canopies	Southern most cherry fallen north, still living	F/P	>40	B2	5.7	Remove fallen tree

					MS							cherries split by 1.5 m							
T27	False acacia	*Robinia pseudoacacia*	SM	16	S	600	5	6	8	8	8	Minor raised roots to south-east	Single stem, vertical	Rounded, balanced canopy	Tag 003242	F	>40	B2	7.2	
T28	False acacia	*Robinia pseudoacacia*	SM	16	S	475	8	7	7	4	4	Raised root to south with previous mower damage	Single stem, vertical	Canopy limited by T26 and T28	Tag 003243	F	>40	B2	5.7	
T29	Maple	*Acer* sp.	SM	15	S	300	3	3	3	3	3	No visual defects	Single stem, vertical	Compact, balanced canopy	Tag 003244	F	>40	B2	3.6	
TG30	Leyland cypress	*X Cuprocyparis leylandii*	SM	10	S	Est. 250	0	1	1	1	2	No visual defects, close to footpath	Single stems, vertical	Canopy reads as one, managed as hedgerow with lower 3 m to east cut in line with fence	Linear group along edge of path	F	20-40	B2	3.0	
T31	Silver birch	*Betula pendula*	Y	14	S	225	4	3	3	3	3	No visual defects	Single stem, vertical	Compact canopy, limb removed at 3 m south	Tag 003291	F	>40	B2	2.7	
T32	Silver birch	*Betula pendula*	SM	16	S	350	4	5	5	5	5	No visual defects	Single stem, vertical	Rounded balanced canopy interconnected with T32. Previous limb removal at 4 m to south-east	Tag 003292	F	20-40	B2	4.2	
T33	Hornbeam	*Carpinus betulus*	SM	14	S	425	1	6	6	3	4	No visual defects	Single stem, vertical. Minor bark damage at 20 cm to west, sap visible to north at 1 m. Epicormic growth at base.	Canopy limited by T31 to west	Tag 003293	F	>40	B2	5.1	
T34	Cherry	*Prunus* sp.	Y	6	MS	100 x2	1	2	2	2	2	Growing at edge of building	Bifurcated at base, vertical	Canopy limited by building to 2 .5 m west	Self-set	P	<20	C2	1.8	
T35	London plane	*Platanus x hispanica*	SM	14	S	475	3	6	6	6	6	No visual defects	Single stem, vertical	Rounded, balanced canopy	Thin ivy cladding on main stem, negligible BRP	F	>40	B2	5.7	

T36	Sycamore	*Acer pseudoplatanus*	Y	14	S	375	4	4	4	3	5	No visual defects	Single stem, vertical	Rounded, balanced canopy. Previously crown lifted to 4 m.	Limited canopy due to T1 and T3. Tree tag 003287	F	>40	B2	4.5	
T37	London plane	*Platanus x hispanica*	SM	14	S	600	3	7	7	7	7	No visual defects	Single stem, vertical	Rounded, balanced canopy, previously crown lifted to 4 m to east	Thin ivy cladding on main stem, negligible BRP	F	>40	B2	7.2	
T38	Field maple	*Acer campestre*	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	
T39	Ash	*Fraxinus excelsior*	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	
T40	Norway maple	*Acer platanoides*	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	
T41	London plane	*Platanus x hispanica*	Y	8	MS	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	
T42	Norway maple	*Acer platanoides*	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	
T43	Norway maple	*Acer platanoides*	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	
T44	Ash	*Fraxinus excelsior*	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	
T45	Norway maple	*Acer platanoides*	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	

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)	OM – Over-mature **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.	

5.0 Tree Management

5.1 Arboricultural Assessment

Through the centre and north-west of the Site, and on and adjacent to, its boundaries are a number of tree groups and individual trees that could be impacted by any proposed re-development. It is expected tree losses will be required in the north-west to extend the hardstanding, whilst trees in the south-west are anticipated to require removal for realignment works, however, the new landscaping includes extensive new tree and native thicket planting to provide additional screening and complement the retained trees.

Previous tree management on-Site includes crown lifting to T36, T37, T22, T31, T32 and T33 to provide clearance beneath and also the cutting back of TG30 to prevent obstructing the footpath. Ivy is beginning to extend up the stems of TG2 and this should be controlled to prevent it taking over, whilst the fallen cherry in TG26 should be removed. 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.

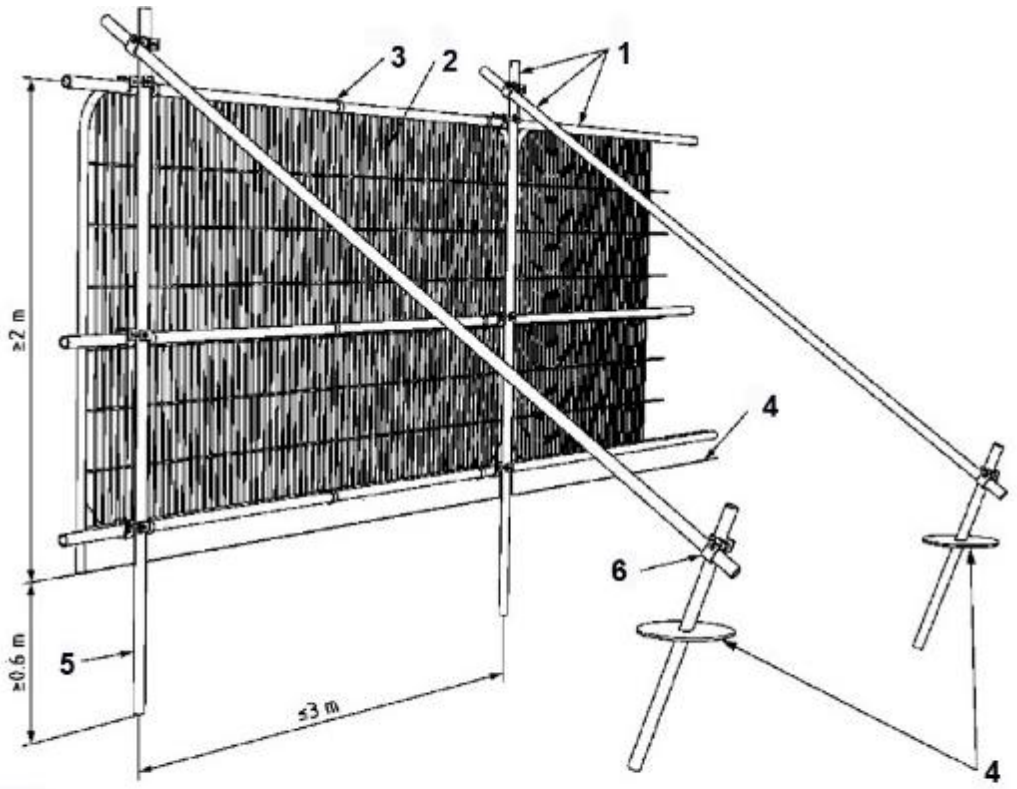
5.2 Recommendations

Recommendation 1 (Adequate Tree Protection)

Those trees identified within any development plan in proximity to the construction works will need to be adequately protected during any approved works. As a general rule, 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 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;



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

- 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;

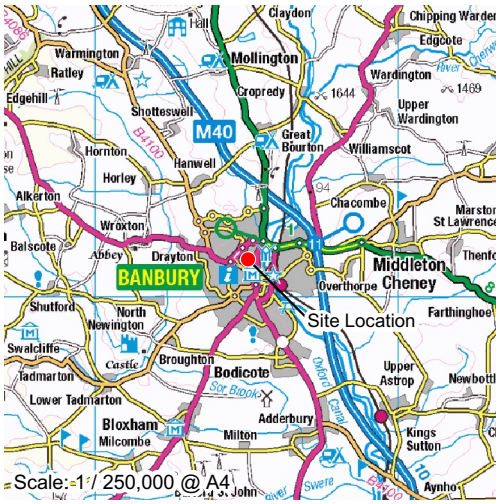
- No fires should be lit where flames are anticipated to extend to within 5 m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire;
- Notice boards, telephone cables or other services should not be attached to any part of a retained tree;
- Where it is deemed 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 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; and
- All of the above precautionary measures should be applied to minimise the effect of any damage to long-term tree health and safety.

6.0 Disclaimer

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Sections 1.0 and 3.0 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:1:10,000 @ A4

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TITLE:
Site Location Map
Banbury 200, Southam Road
Banbury

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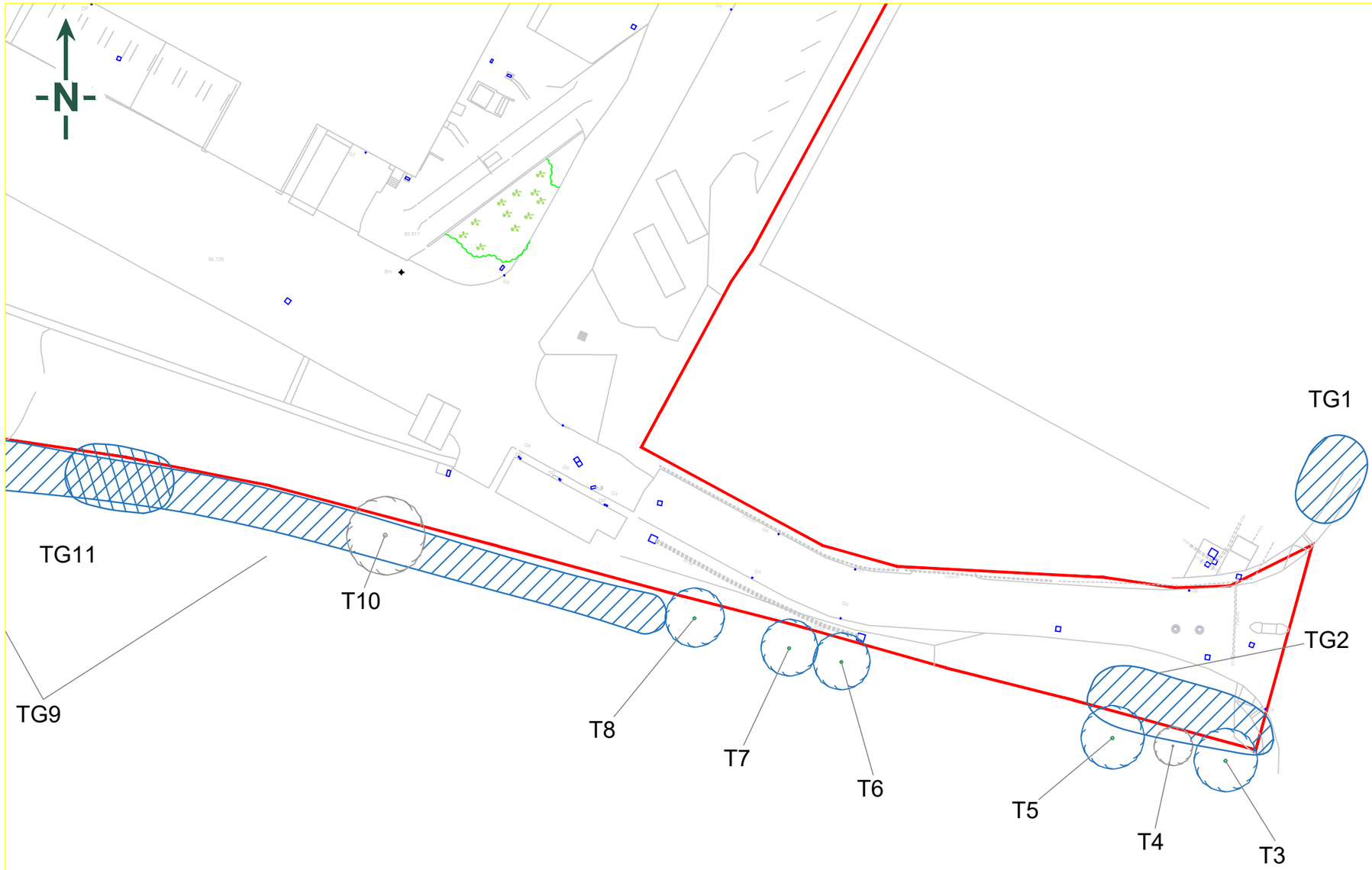
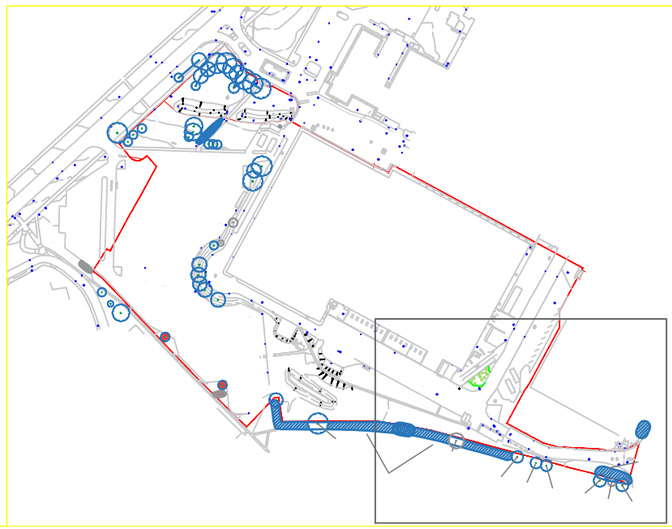
Figure 2a-d – Tree Survey





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Banbury 200, Southam Road
Banbury

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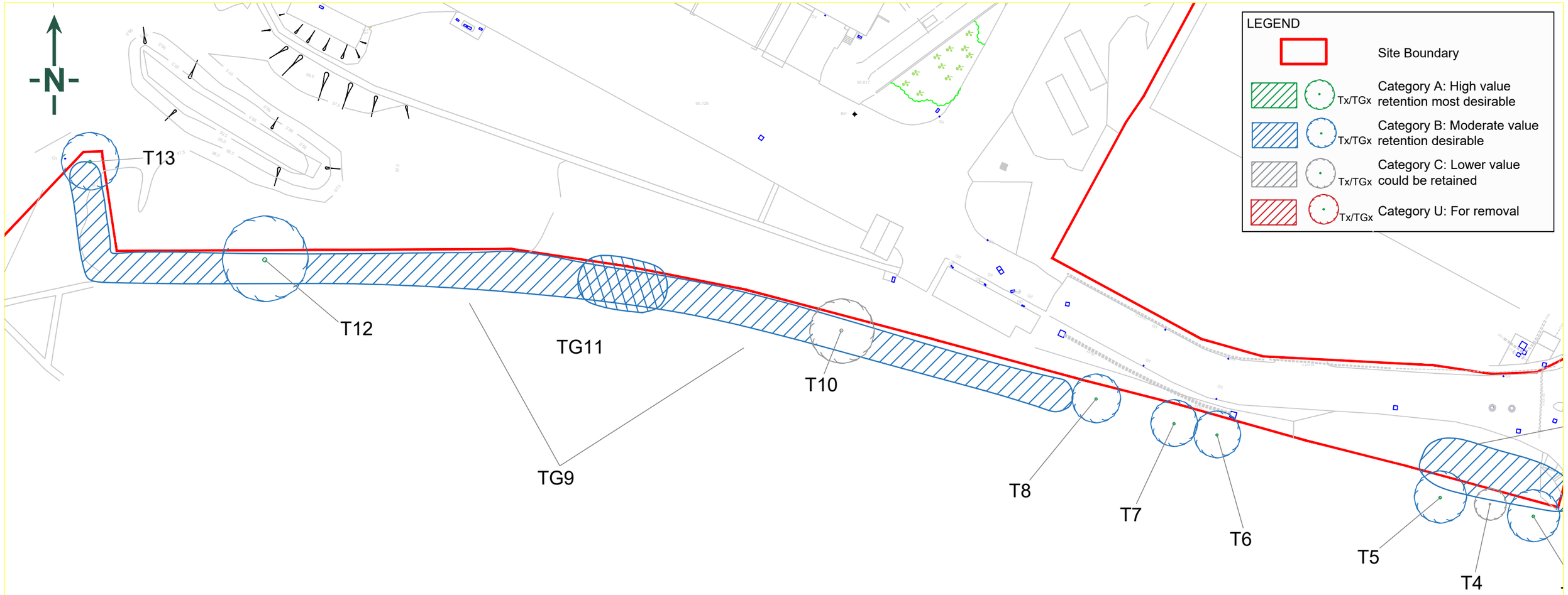

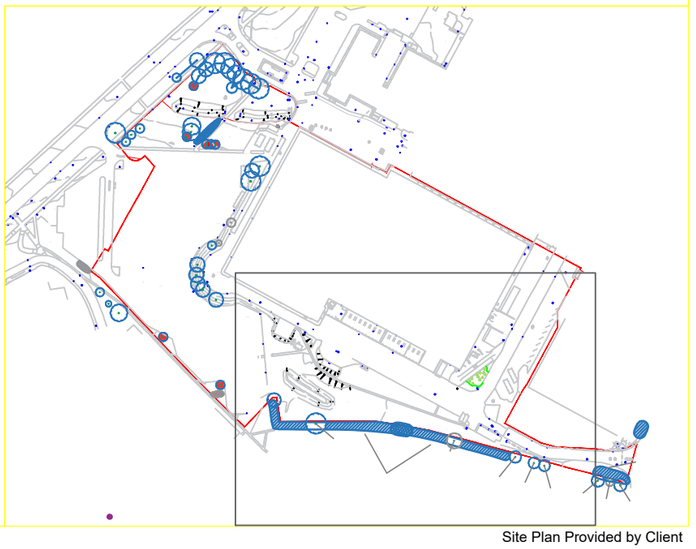

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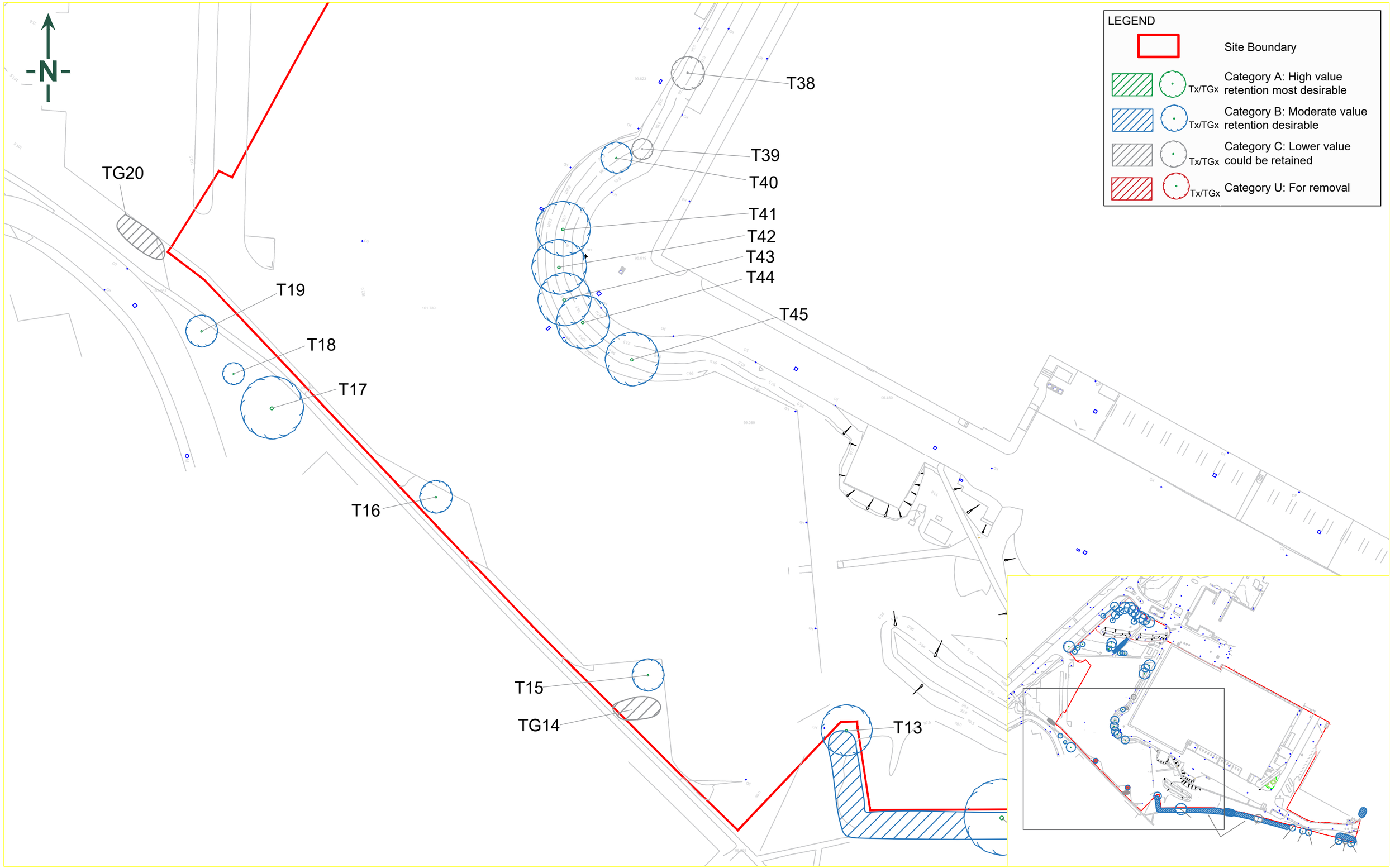

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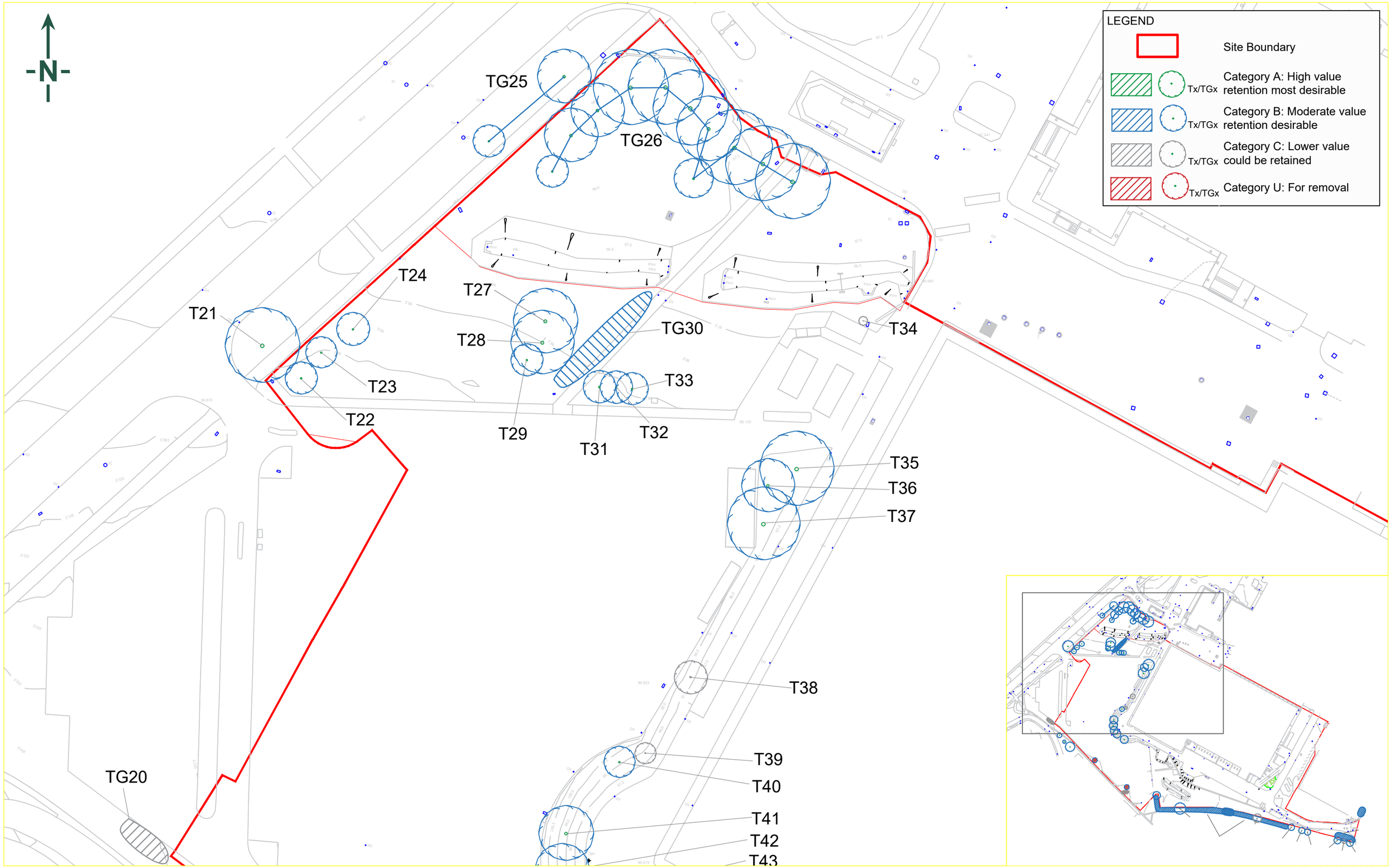

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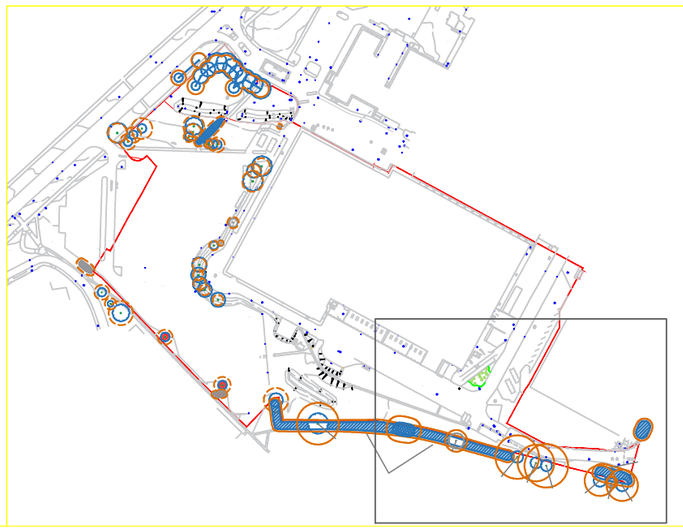
Figure 3a-d – Tree Constraints Plan

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
- (m) — RPA: Root Protection Area

TG1 (3.60)
TG2 (5.40)
T3 (10.80)
T4 (3.90)
T5 (10.50)
T6 (15.00)
T7 (12.60)
T8 (15.00)
T10 (7.50)
TG11 (7.20)
TG9 (3.00)



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Tree Constraints Plan
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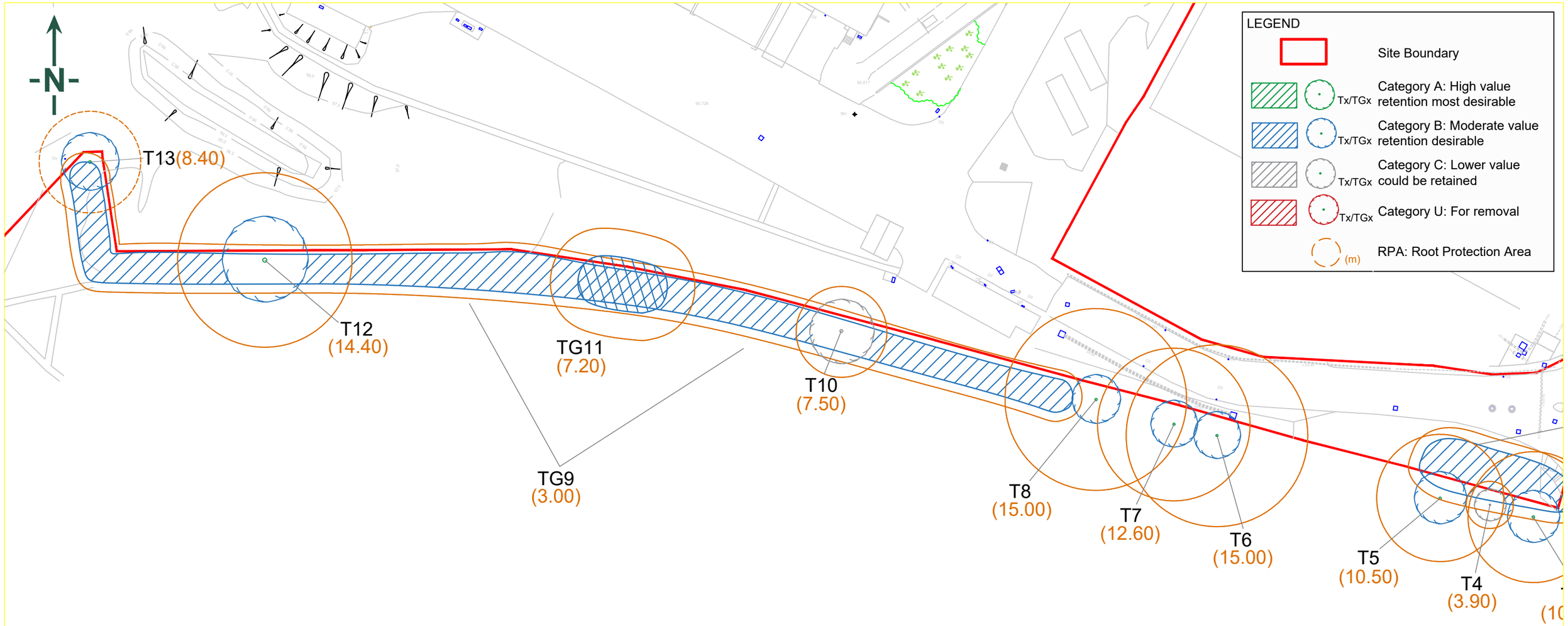

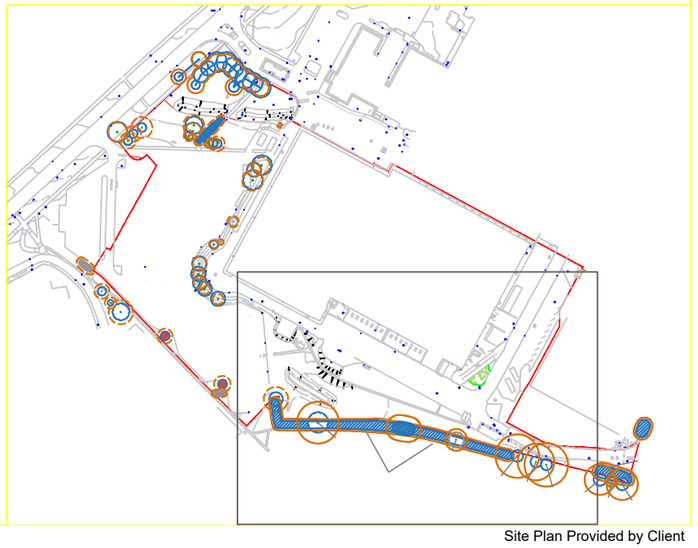

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Tree Constraints Plan
Banbury 200, Southam Road
Banbury

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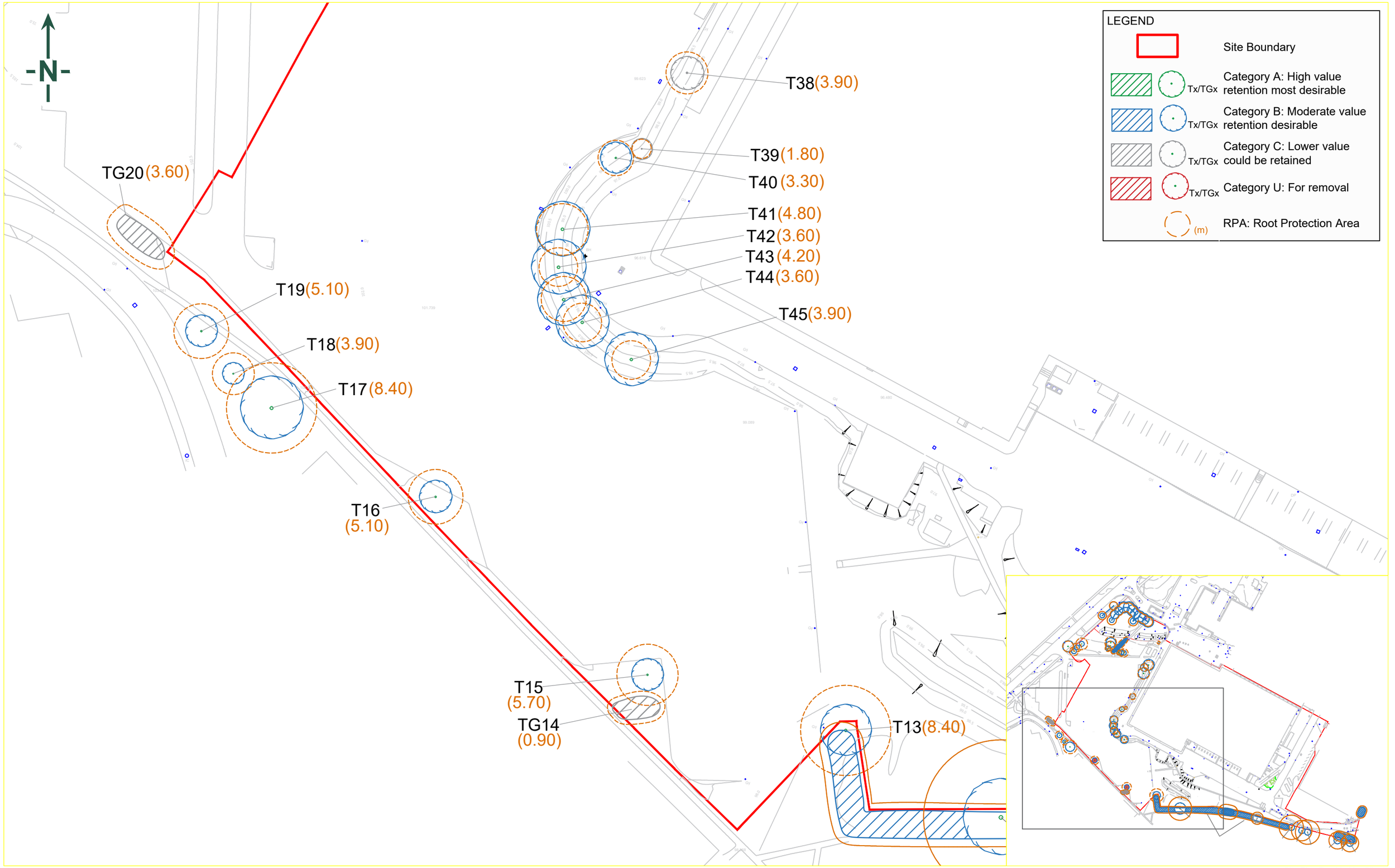
DATE: 04 August 2021		



Site Plan Provided by Client

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TITLE:
Tree Constraints Plan
Banbury 200, Southam Road
Banbury

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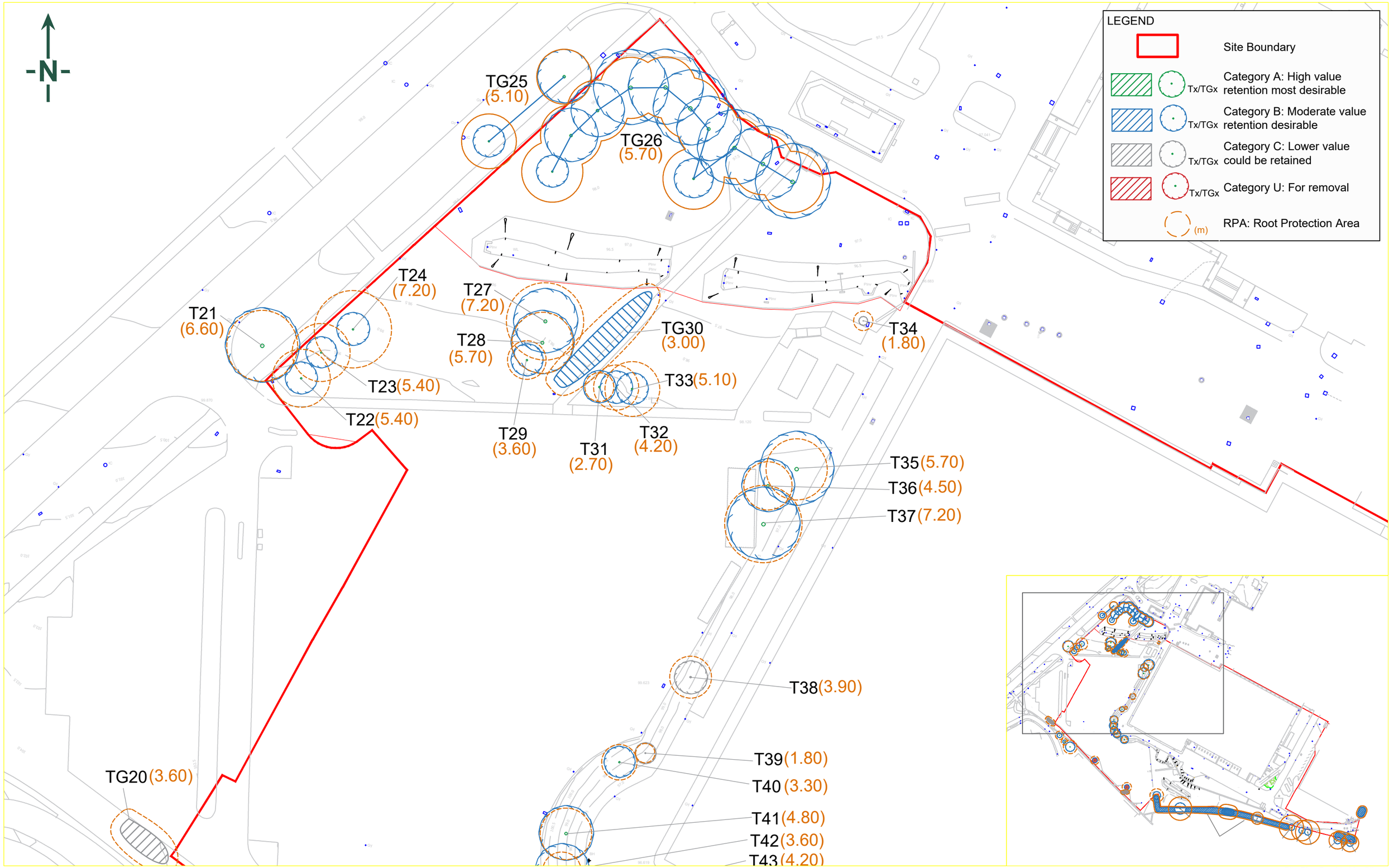
DATE: 04 August 2021			



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TITLE:
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Banbury 200, Southam Road
Banbury

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CHECKED BY: CB	REVISION: 1	FIGURE NO: 3d
DATE: 04 August 2021		

Appendix A – References

References

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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.

The Hedgerow Regulations 1997, HMSO.

Appendix B – Site Photographs

Site Photographs

Photograph 1 – Tree Group (TG) 1

Photograph 2 – TG2

Photograph 3 – Tree (T) 3, centre

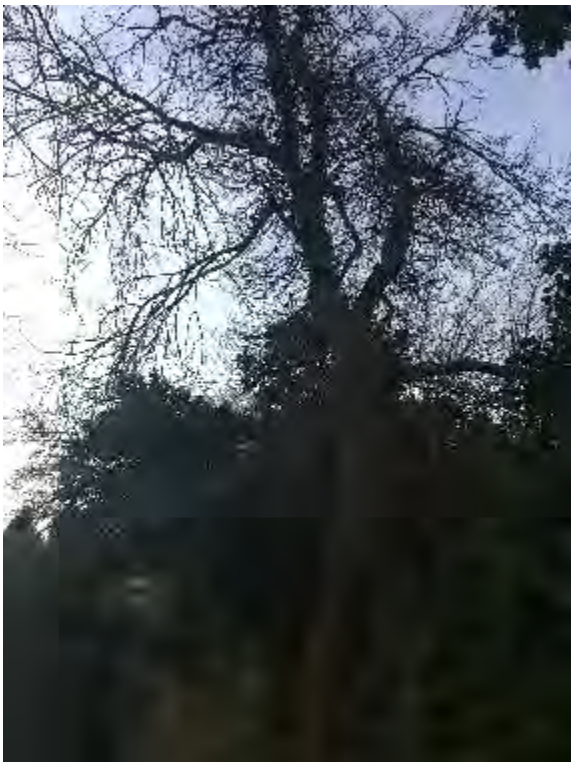
Photograph 4 – T4

Photograph 5 – T5

Photograph 6 – T7 (left) and T6 (right)

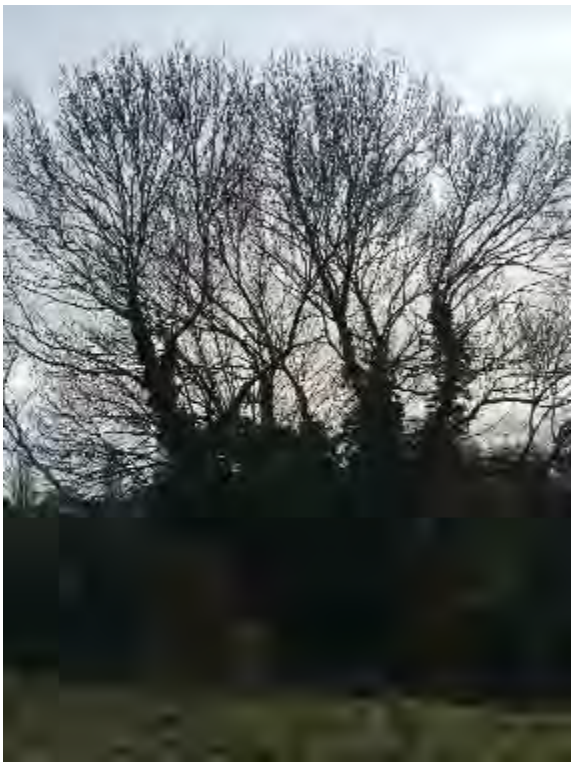
Photograph 7 – T8

Photograph 8 – TG9



Photograph 9 – T10

Photograph 10 – TG11



Photograph 11 – T12

Photograph 12 – T13

Photograph 13 – TG14

Photograph 14 – T15

Photograph 15 – T16

Photograph 16 – T17

Photograph 17 – T18

Photograph 18 – T19

Photograph 19 – TG20

Photograph 20 – T21

Photograph 21 – T22 (left) and T23 (right)

Photograph 22 – T24

Photograph 23 – TG25

Photograph 24 – TG26

Photograph 25 – T27 (right), T28 (centre) and T29 (left)

Photograph 26 – TG30

Photograph 27 – T31 (right), T32 (centre) and T33 (right)

Photograph 28 – T34

Photograph 29 – T35

Photograph 30 – T36

Photograph 31 – T37

Photograph 32 – T38

Photograph 33 – T39 (right) and T40 (left)

Photograph 34 – T41

Photograph 35 – T42

Photograph 36 – T43

Photograph 37 – T44

Photograph 38 – T45