

BS 5837:2012 Arboricultural Impact Assessment

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

Presented to Lysander

Issued: November 2021

Delta-Simons Project No. 21-1553.02



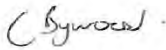


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Report Details

Client	Lysander
Report Title	BS 5837:2012 Arboricultural Impact Assessment
Site Address	Southam Road, Banbury, OX16 3AE
Project No.	21-1553.02
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Quality Assurance

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
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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 produce an Arboricultural Impact Assessment (AIA) to British Standard (BS) 5837:2012. The AIA survey was undertaken of an area of land situated west of Southam Road in Banbury, Oxfordshire (hereafter referred to as 'the Site'). The assessment was undertaken in order to inform a planning application for the Site.

The aims of the AIA were to:

- ▲ Detail foreseeable tree related issues within this Report to inform the Local Planning Authority (LPA);
- ▲ Provide an initial analysis of the impacts that the proposed development is projected to have on trees both within the Site and, where considered pertinent and where practicable, on land immediately adjacent to its boundaries; and
- ▲ Provide guidance on suitable retained tree management and mitigation for projected losses, along with advice on appropriate tree protection measures in the context of the proposed development in accordance with current guidance.

1.2 Site Description

The Site is centred at Ordnance Survey (OS) grid reference SP 45110 41443, to the north-west of Banbury. 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 corners 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 and a drain lies to the north-west. Beyond the eastern boundary lies a Waitrose supermarket and Southam Road beyond and 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 1.

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.

1.4 Site Visit, Data Collection and Tree Plans

Further to the completion of a Tree Survey of the Site, which took place on 11th January 2021 for the eastern half of the Site and 29th March 2021 for the western half, all tree data collected from the Site is set out in the attached tabulated Tree Survey Schedule (TSS) at Appendix B which, for ease of interpretation, should be read alongside the associated BS:5837:2012 Table 1 (as appended).

The survey identified 36 individual trees (prefixed 'T') and nine groups of trees (prefixes 'TG'). The surveyed vegetation has been numbered accordingly on the Tree Constraints Plan (TCP) and Tree Impact Plan (TIP), as appended (see Figures 2a-d and Figures 3a-d, respectively). The TCP details the existing Site with the readily definable tree constraints, whilst the TIP also has an overlay of the development proposals along with associated projected tree related impacts. The plans are based on the topographical survey of the existing and proposed Site plans that were provided in electronic format by the Client, and for the purpose of this Report, it is assumed that these are accurate.

Cherwell District Council website has indicated that none of the trees on the Site are subject to a Tree Preservation Order (TPO), or are within a Conservation Area (CA).

2.0 Legislation in Respect of Trees and Associated Wildlife

2.1 Tree Preservation Orders and Conservation Area Designations

The Town & Country Planning Act (1990) (the Act) and associated Regulations empower LPAs to protect trees in the interests of amenity by making TPOs. The Act also affords protection for trees of over 75 mm diameter that stand within the curtilage of a CA. Subject to certain exemptions, an application must be made to the LPA in question to carry out works upon or remove trees that are subject to a TPO, whilst six weeks' notice of intention must be given to carry out works upon or remove trees within a CA that are not protected by a TPO.

2.2 Protected Species

2.2.1 Nesting Birds

Nesting birds are afforded statutory protection under the Wildlife & Countryside Act (1981, as amended) and their potential presence should, therefore, be considered when trimming hedges, removing climbing plants and pruning and removing trees. The breeding period for nesting birds runs from March to late July, inclusive. Hedges provide valuable nesting sites for many birds and management should, therefore, be avoided during this period. Trees, hedges and ivy should be inspected for nests by a suitably qualified ecologist prior to pruning or removal, and any work likely to destroy or disturb active nests should be avoided until the young have fledged.

2.2.2 Bats

All bats and their roosts are protected under Section 9 of the WCA 1981 (as amended) and Annex IV of the Habitats and Species Regulations 2017.

It is an offence, either deliberately or recklessly, to destroy, damage or obstruct access to any bat roost, or to disturb a bat using such a place. It should be noted that a roost is protected whether or not bats are present and any activity or works affecting a roost, even when bats are absent, are likely to require a Natural England European Protected Species Licence.

2.3 Felling Licences

Subject to certain exemptions the Forestry Act (1967) requires that a 'Felling Licence' be obtained to remove growing trees amounting to more than five cubic metres of timber in a calendar quarter. Felling Licences are administered by the Forestry Commission and contravention of the associated controls can incur substantial penalties. A Felling Licence is, however, not required where tree removals are required for the purpose of implementing a development authorised by detailed (i.e. full) planning permission granted under the Act (1990).

3.0 The Tree Population

The Site is described in Section 1.0 of this Report.

As noted previously, 36 individual trees and nine groups of trees were surveyed for the purpose of this appraisal. 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*.

The trees on-Site range from young to semi-mature, with sizes varying from small to large with heights of up to 18 m and maximum diametrical crown spreads of up to 8 m. Several off-Site trees to the south were mature with the Lombardy poplar to the south-east (T3, T5-T8) reaching up to 25 m. Detailed tree dimensions and other pertinent information, such as structural defects and physiological deficiencies, are included in the TSS at Appendix B.

In respect to the TSS, it should be noted that tree quality is categorised within the existing Site context without taking any development proposals into account. However, recommendations for works included in the TSS takes both current Site usage into consideration and the proposed Site development where there are definable development related issues with regards to specific trees.

The TSS includes a column ('Cat. Grade') listing the trees' respective retention values, where they are rated either 'A', 'B', 'C' or 'U', as per BS5837:2012 Table 1 (Appendix B). 'A' category trees are those considered to be of 'high quality' and, accordingly, the most suitable for retention, whilst 'B' category trees are those considered to be of 'moderate quality'. As detailed in Table 1 (below), 31 trees and seven tree groups were categorised as moderate quality ('B'), and five trees and two tree groups were categorised as low quality ('C').

Table 1: BS5837-2012 Retention Categories of the Surveyed Trees

Tree Quality	Ret. Cats.	Tree/ Group Numbers	Totals
Those of a moderate or high quality that should be afforded appropriate consideration in the context of development	'A'		
	'B'	T3, T5, T6, T7, T8, T12, T13, T15, T16, T17, T18, T19, T21, T22, T23, T24, T27, T28, T29, T31, T32, T33, T35, T36, T37, T40, T41, T42, T43, T44, T45 TG1, TG2, TG9, TG11, TG25, TG26, TG30	31 Trees 7 Tree Groups
Those of a low quality that should not be considered a material constraint to development	'C'	T4, T10, T34, T38, T39 TG14, TG20	5 Trees 2 Tree Groups
Those that should be removed for management reasons regardless of site proposals	'U'		
Totals			36 Trees & 9 Tree Groups

It is understood the development will comprise the use of the Site for the storage of operational vehicles, associated parking, welfare facilities, vehicle barriers, guard hut and associated infrastructure. Additional tree

planting is proposed around the Site, as detailed on the Urban Wilderness softworks general arrangement plan (drawing ref. 388-UW-T), with the majority of on Site trees to be retained.

Accordingly, the TCP has been overlaid on the development plan provided by Lysander Associates (November 2021) in order to appraise the projected impacts that the development will potentially have on the Site vegetation, as detailed on the TIP.

3.1 Projected Arboricultural Losses Relating to the Proposal

As detailed in Table 2, below, and on the TIP, implementation of the proposed development as it stands is projected to require the removal of six moderate quality trees, one moderate quality tree group (a line of Leyland cypress) and one low quality tree group (comprising immature self-set trees amongst scrub). One tree in TG26 is also recommended for removal due to its poor form, as is T34. The remainder of on-Site trees are to be retained.

Table 2: Arboricultural Impacts of Proposed Development and Other Tree Removal Proposals

Tree Quality	Ret. Cats.	Removals necessary to implement development	Removals suggested for non-development related reasons	Total number of tree removals
Those of a moderate or high quality that should be afforded appropriate consideration in the context of development	'A'			
	'B'	T15, T16, T29, T31, T32, T33 TG30	One tree in TG26	6 Trees 1 Tree Group and a single tree in a second group
Those of a low quality that should not be considered a material constraint to development	'C'	TG14	T34	1 Tree 1 Tree Group
Those that should be removed for management reasons regardless of Site proposals	'U'			
Totals				7 Trees & 2 Tree Groups, and a single tree in a third group

3.2 Projected Arboricultural Impacts Relating to the Proposal

Tree works will be required to create space for additional hardstanding in the north-west as well as new boundary fencing and resurfacing works.

Crown lifting to 4 m and/ or cutting back to the boundary will be required to trees T35 -T37 to allow to allow clearance of 4 m for the removal of the bike shelter and clearance for machinery for hard surface removal. Further crown lifting to 4 m is also required to T13 to allow working room for the removal of hard surfacing and the replacement of the boundary fencing.

Works are required within the RPA of T28 for creating the new footpath, which will impact approximately 10% of the RPA. Additionally, works are proposed within the RPA of T10 to create a footpath for the utilities area requiring excavations of approximately 600 mm to install the concrete, however, these works are proposed within the outer edge of the RPA, impacting less than 20% of the trees RPA. T10 is located approximately 1 m below the level of the new utilities area at the base of a grassed embankment such that there is anticipated to be reduced root plate extending up the slope.

3.3 Mitigation for Projected Tree Losses as Part of Site Landscaping

New tree planting as part of the Site landscaping plans is proposed, as indicated on the Softworks General Arrangement Plan by Urban Wilderness. The proposals include provision for extensive tree planting around the Site including along the boundaries, in carpark planting beds and in the grassland in the north of the Site, which are projected to mitigate for the necessary development related tree losses. Thicket and hedgerow planting is also proposed to further link the areas of trees on Site.

4.0 Summary and Conclusions

The Site is located in the north-west of Banbury in Oxfordshire. Thirty-six individual trees and nine groups of trees were surveyed in respect of the proposed development of the Site. The existing Site is proposed to be redeveloped to allow for the storage of operational vehicles, associated parking, vehicle barriers, guard hut and associated infrastructure.

Thirty-one individual trees and seven tree groups were allocated a moderate retention value. Five trees and two tree groups were allocated low retention values.

An evaluation of the proposed development in the context of the existing Site has indicated that it will be necessary to remove six individual trees of moderate retention value and moderate value tree group (comprising a line of Leyland cypress) as well as one low value tree group. A further poor quality tree in a one moderate tree group requires removal due to its form, as does T34 which has limited space adjacent to a building. Canopy lifting will be required on four trees to provide working space during development works, while working within the RPAs of T10 and T28 are anticipated to have limited impact to the trees root systems with works limited to the extremities of the RPA's. However, the provision of extensive new tree planting is proposed within the development's landscaping which, in turn, is projected to mitigate for the necessary development related tree losses and impacts.

In consideration of the above findings, it is concluded that, from the details provided to date, the Site in question can be developed as proposed, whilst retaining the majority of individual trees and tree groups and, in turn improving the overall quality of the tree cover by additional tree planting. However, in order to ensure successful existing tree preservation, it is essential that the retained trees are protected in strict accordance with current Government guidance and the recommendations included herein.

5.0 Recommendations for Successful Tree Retention in the Context of Development

5.1 Root Protection Areas and Construction Exclusion Zones

Adequate protection of the Root Protection Areas (RPAs) of retained trees during construction is essential to ensure their long-term viability. RPAs, which are calculated through a method provided in BS5837:2012, are ground areas that must be protected by temporary protective fencing (Specification given in Appendix C) as Construction Exclusion Zones (CEZs) throughout the development process, thereby keeping the trees' root zones free from disturbance, including compaction. Consequently, the RPA distances, as detailed in the TSS, and included on the TCP and TIP indicate the likely on-Site below-ground constraints in respect of tree roots, whilst assisting in planning for appropriate tree retention in relation to feasible development. In certain situations, such as at this Site, there is a limited degree of flexibility in the CEZ positioning, as discussed below.

The TSS includes two columns listing the RPAs of the individually surveyed trees and, where applicable, the largest of the trees in any surveyed groups as overall areas in square metres and as radial distances. The radial RPAs are indicated as blue coloured circles on the TCP and TIP. With regard to CEZs the design, materials and construction of the fencing should be appropriate for the intensity and type of site construction works, and should conform to at least section 6.2 of BS5837:2012, and should be secured by the imposition of a suitably worded planning condition. A default Temporary Protective Fencing Specification is included at Appendix C.

5.2 Underground Utilities

The installation of underground utilities in close proximity to trees can cause serious damage to their roots. As such, it is essential that utilities be routed outside RPAs unless there is no other available option, and specifics regarding these routes should be included as part of a detailed planning application. Where RPAs cannot be avoided then guidelines set out in the National Joint Utilities Group publication '*Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2) – Operatives Handbook*' should be followed (e.g. trenches of a very limited width to be hand dug or the use of directional drilling).

5.3 Arboricultural Method Statement and Tree Protection Plan

Government guidance recommends that, where considered practical by the LPA, an Arboricultural Method Statement (AMS) and a Tree Protection Plan (TPP) be prepared detailing mitigation for trees during the construction process. Essentially, the AMS and TPP describe and detail the procedures, working methods and protective measures to be used in relation to retained trees in order to ensure that they are adequately protected during the construction process.

6.0 Other Recommendations

6.1 Non-Development Related Tree Works and Recommendations

Any general management pruning works for retained trees that are stated to be non-development related, as detailed in the TSS, are recommended in accordance with prudent arboricultural management and should, therefore, be carried out regardless of any development proposals and potential changes in land usage associated with the Site. All tree works should be carried out in accordance with BS3998:2010 - Tree Work – Recommendations.

6.2 Tree Work Related Consents

No tree pruning nor removal works should commence on-Site until necessary consents have been obtained from the LPA.

6.3 Arboricultural Contractors

All tree works should be carried out by suitably qualified and experienced arboricultural contractors carrying appropriate public liability insurance cover and be implemented to the minimum current UK industry standards and in accordance with industry codes of practice. Only certificated personnel should, in accordance with The Control of Pesticides Regulations, apply any pesticides.

6.4 Contractors and Subsequently Identified Tree Defects

Tree contractors should be made aware that, should any significant tree defects become apparent during operations that would not have been immediately obvious to the surveyor, then such defects should be notified immediately to the Client and subsequently confirmed to the consultant within five working days.

6.5 New Tree Planting

All tree planting at the Site should be carried out in accordance with BS4428:1989 - Code of Practice for General Landscape Operations, BS3936-1:1992, Nursery Stock – Part 1: Specification for Trees and Shrubs and BS4043:1989, Transplanting Root-Balled Trees where applicable, or any ensuing superseding guidance where applicable.

6.6 Retained Tree Management

Any tree risk management appraisals and subsequent recommendations made in this report were based on observations and Site circumstances at the time of the survey. It should be noted that trees are dynamic living organisms with constantly changing structures, and even those evidently in good condition can succumb to damage and/ or environmental stress. In this respect, it should be noted that, under the Occupiers' Liability Act (1957 & 1984), Site occupants have a duty of care to take reasonable steps to prevent or minimise the risk of personal injury and/or damage to property from any tree located within the curtilage of the land they occupy. It is accepted that these steps should normally include commissioning a qualified and experienced arboriculturist to survey their trees in order to identify any risk of harm to persons or damage to property that they may present and, where unacceptable risks are identified, taking suitable remedial action to negate those risks.

7.0 Limitations of the Arboricultural Impact Assessment

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 A – CEZ Warning Sign

CEZ Warning Sign

– TREE PROTECTION AREA – KEEP OUT!

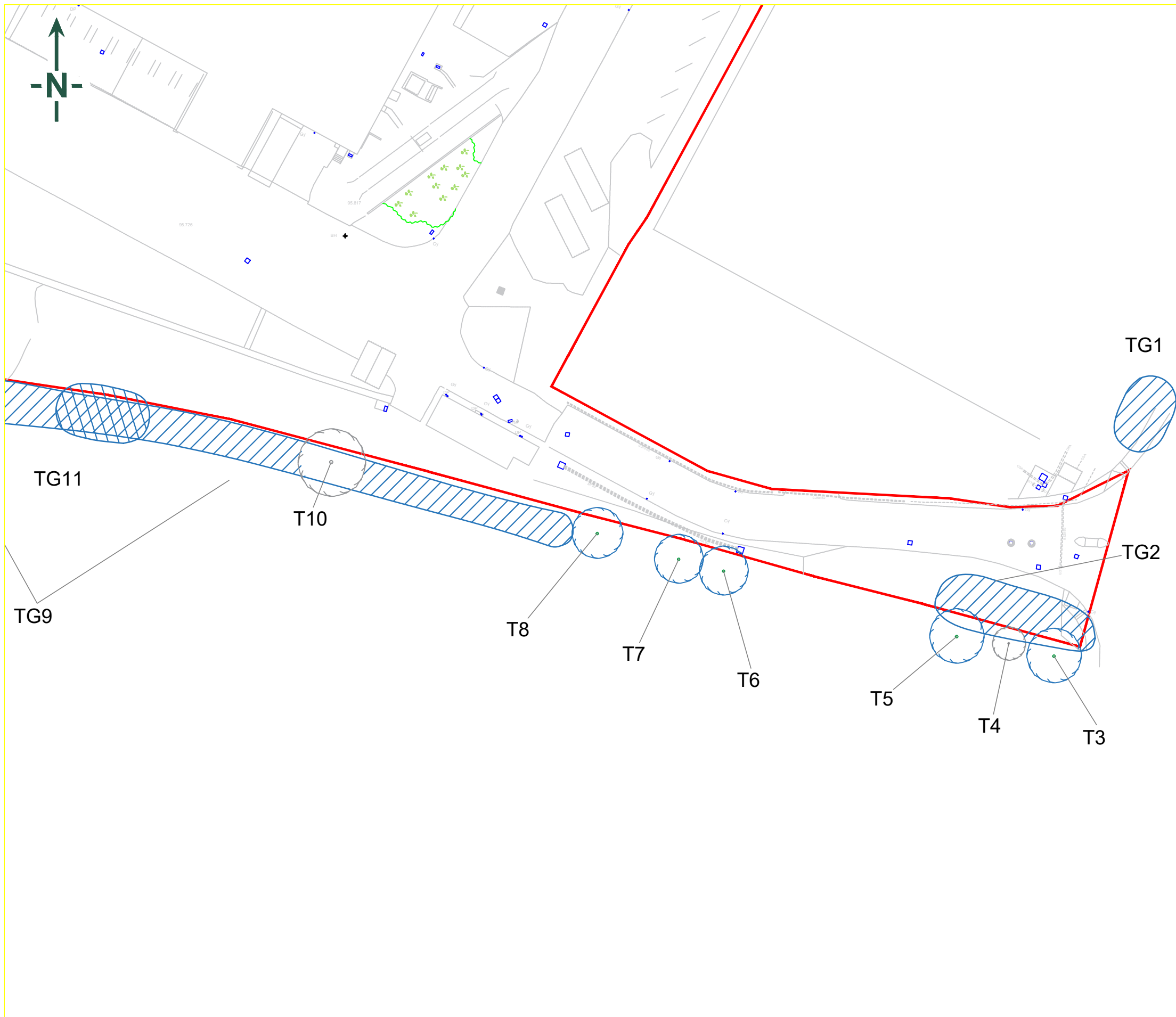
(TOWN & COUNTRY PLANNING ACT 1990)

**THE TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING
CONDITIONS, THE CONTRAVENTION OF WHICH MAY LEAD TO CRIMINAL PROSECUTION.
THE FOLLOWING MUST BE OBSERVED BY ALL PERSONNEL:**

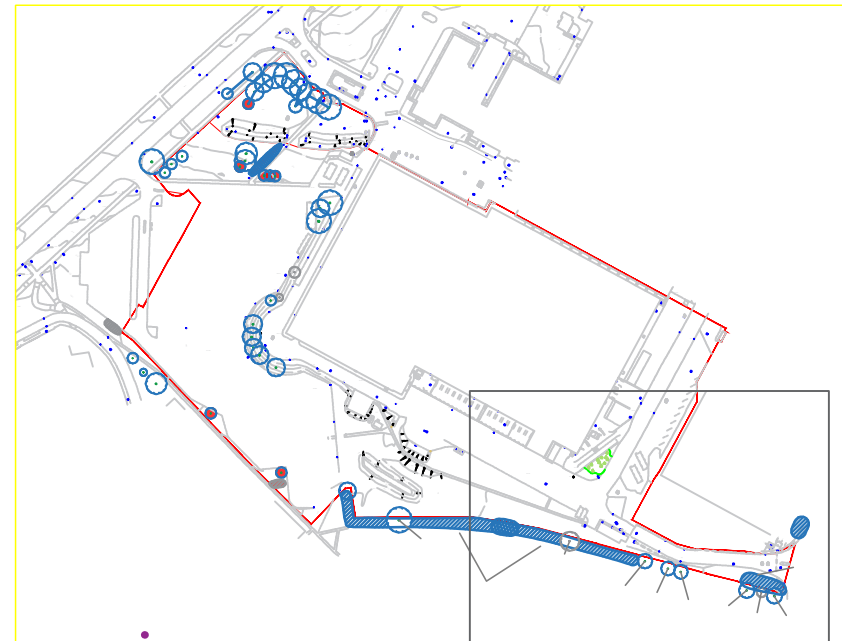
- △ THE PROTECTIVE FENCING MUST NOT BE MOVED**
- △ NO PERSON SHALL ENTER THE CONSTRUCTION EXCLUSION ZONE**
- △ NO MACHINE, PLANT OR VEHICLES SHALL ENTER THE EXCLUSION ZONE**
- △ NO MATERIALS SHALL BE STORED IN THE EXCLUSION ZONE**
- △ NO SPOIL SHALL BE DEPOSITED IN THE EXCLUSION ZONE**
- △ NO EXCAVATION SHALL OCCUR IN THE EXCLUSION ZONE**
- △ NO FIRES SHALL BE LIT IN THE EXCLUSION ZONE**

**ANY INCURSION INTO THE EXCLUSION ZONE MUST BE WITH THE
WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY**

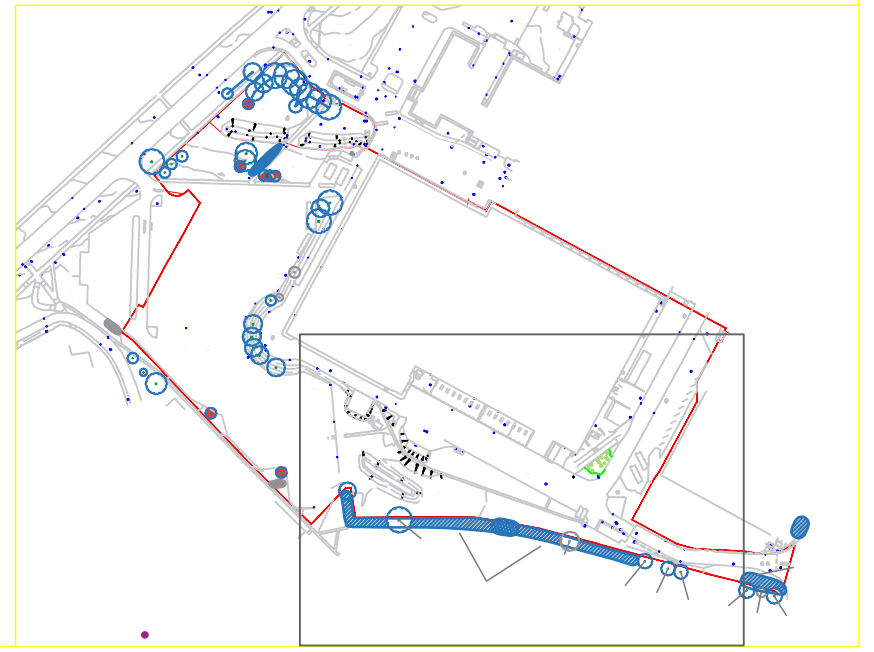
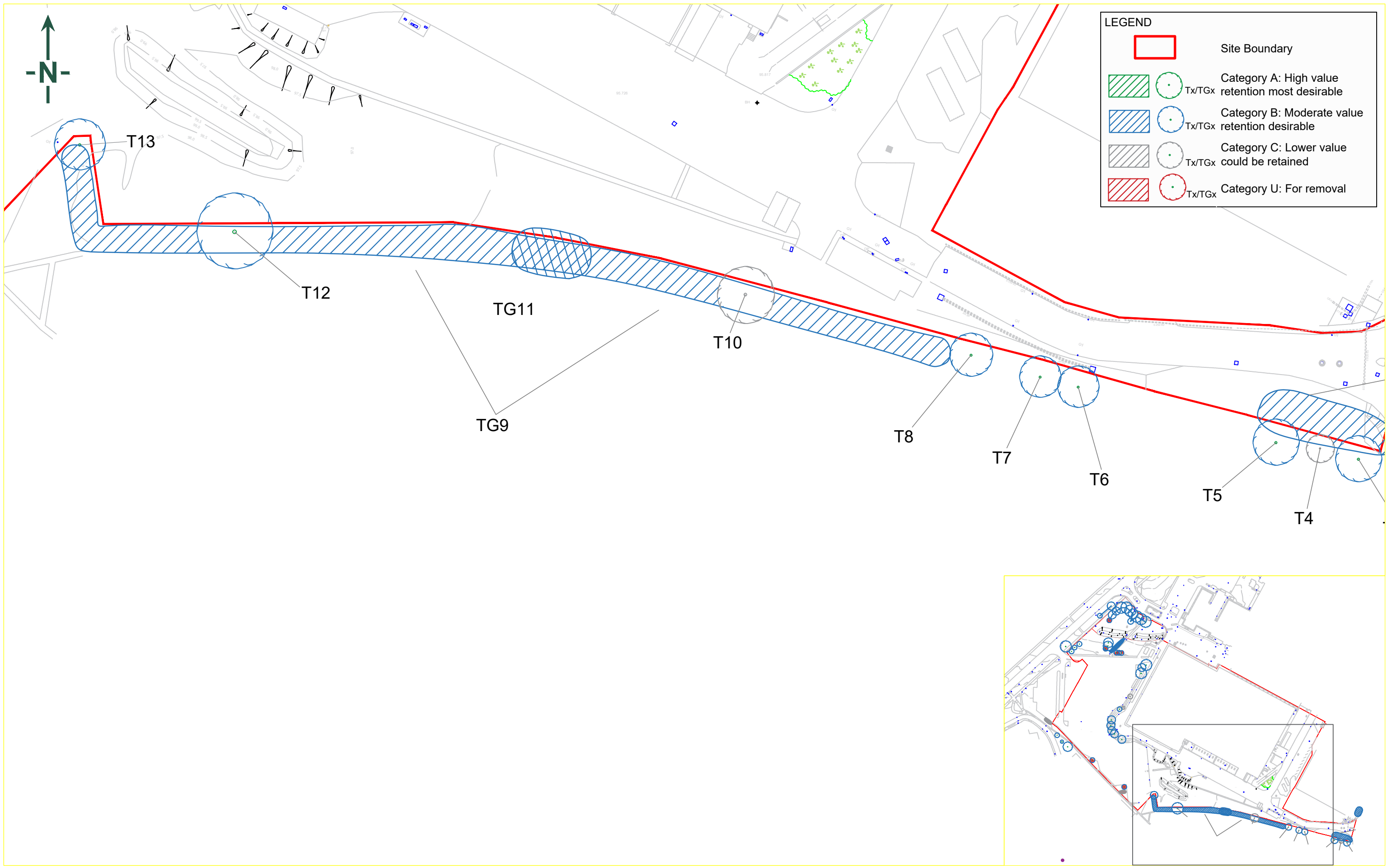
Figures 1a-d – Tree Survey

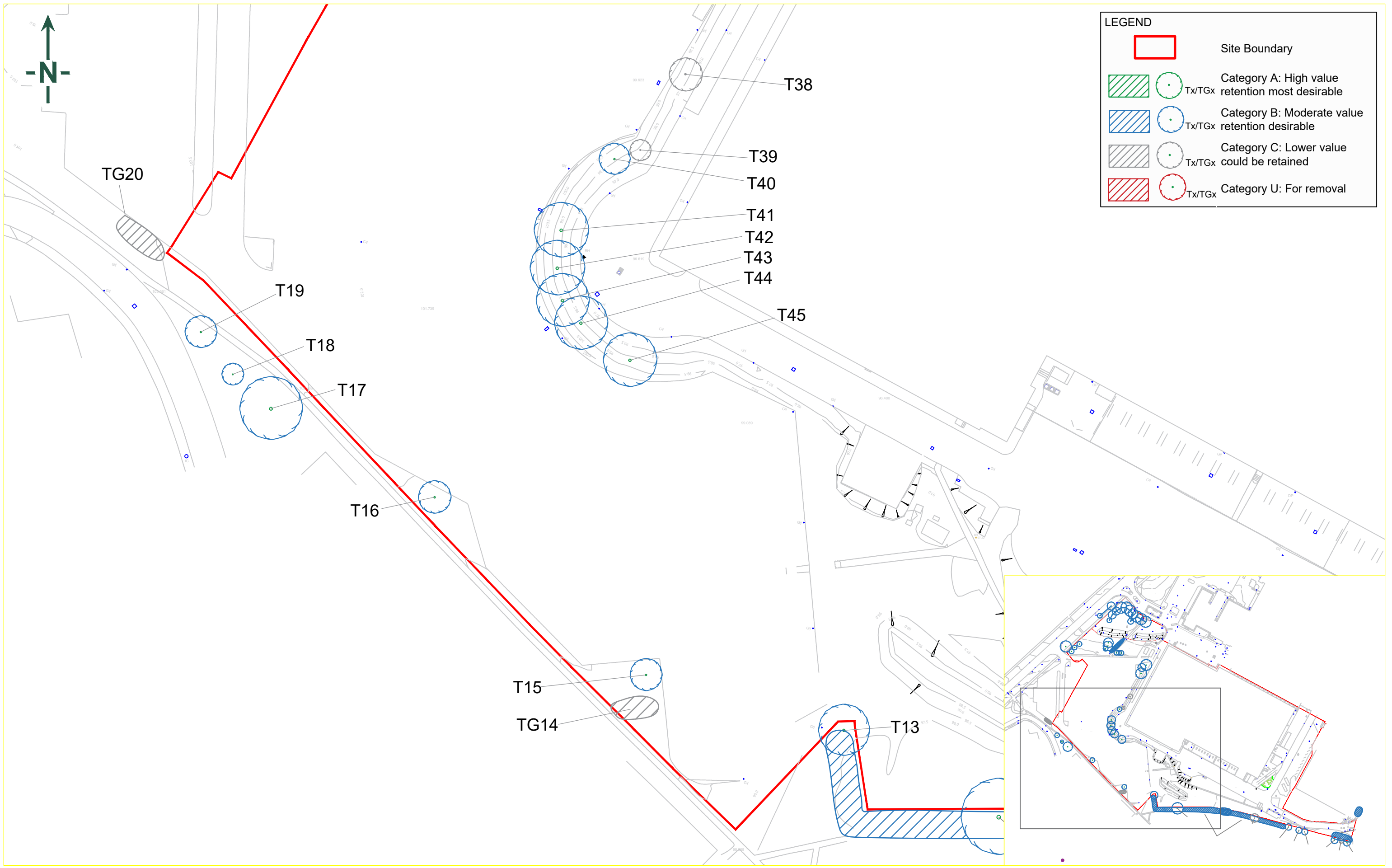











LEGEND	
	Site Boundary
	Category A: High value retention most desirable
	Category B: Moderate value retention desirable
	Category C: Lower value could be retained
	Category U: For removal
RPA: Root Protection Area	



Site Plan Provided by Client





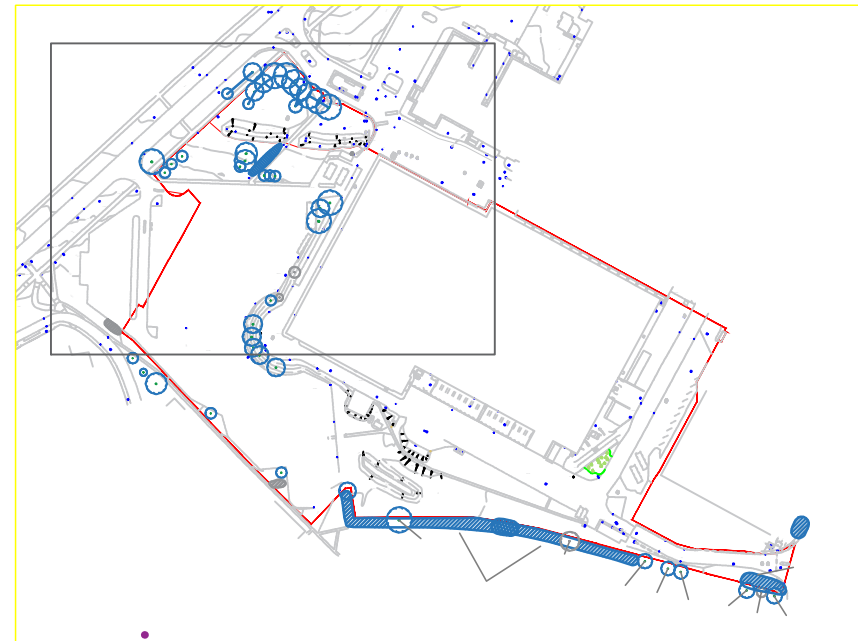
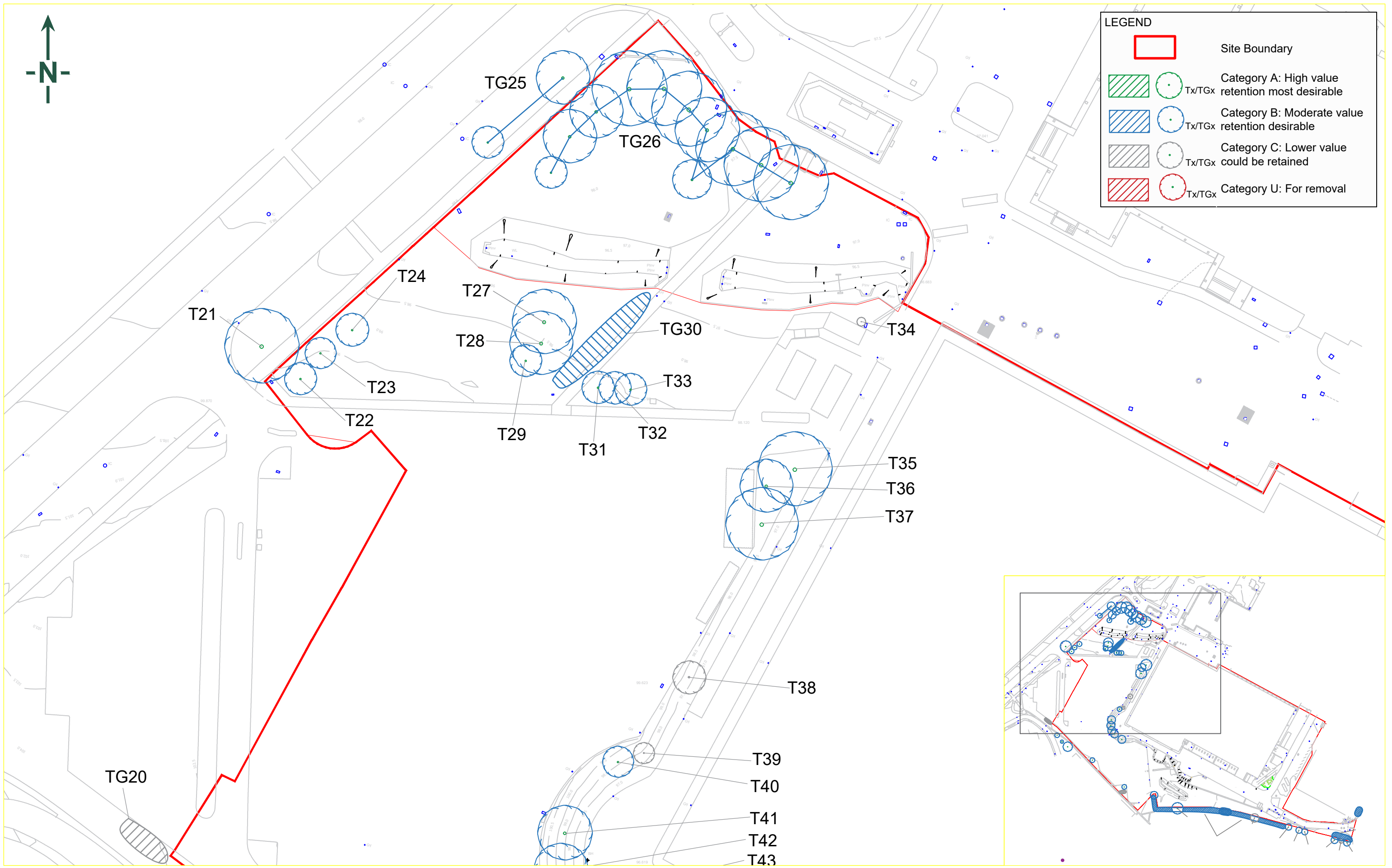
LEGEND	
	Site Boundary
 	Category A: High value retention most desirable Tx/TGx
 	Category B: Moderate value retention desirable Tx/TGx
 	Category C: Lower value could be retained Tx/TGx
 	Category U: For removal Tx/TGx

Site Plan Provided by Client



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)



Site Plan Provided by Client

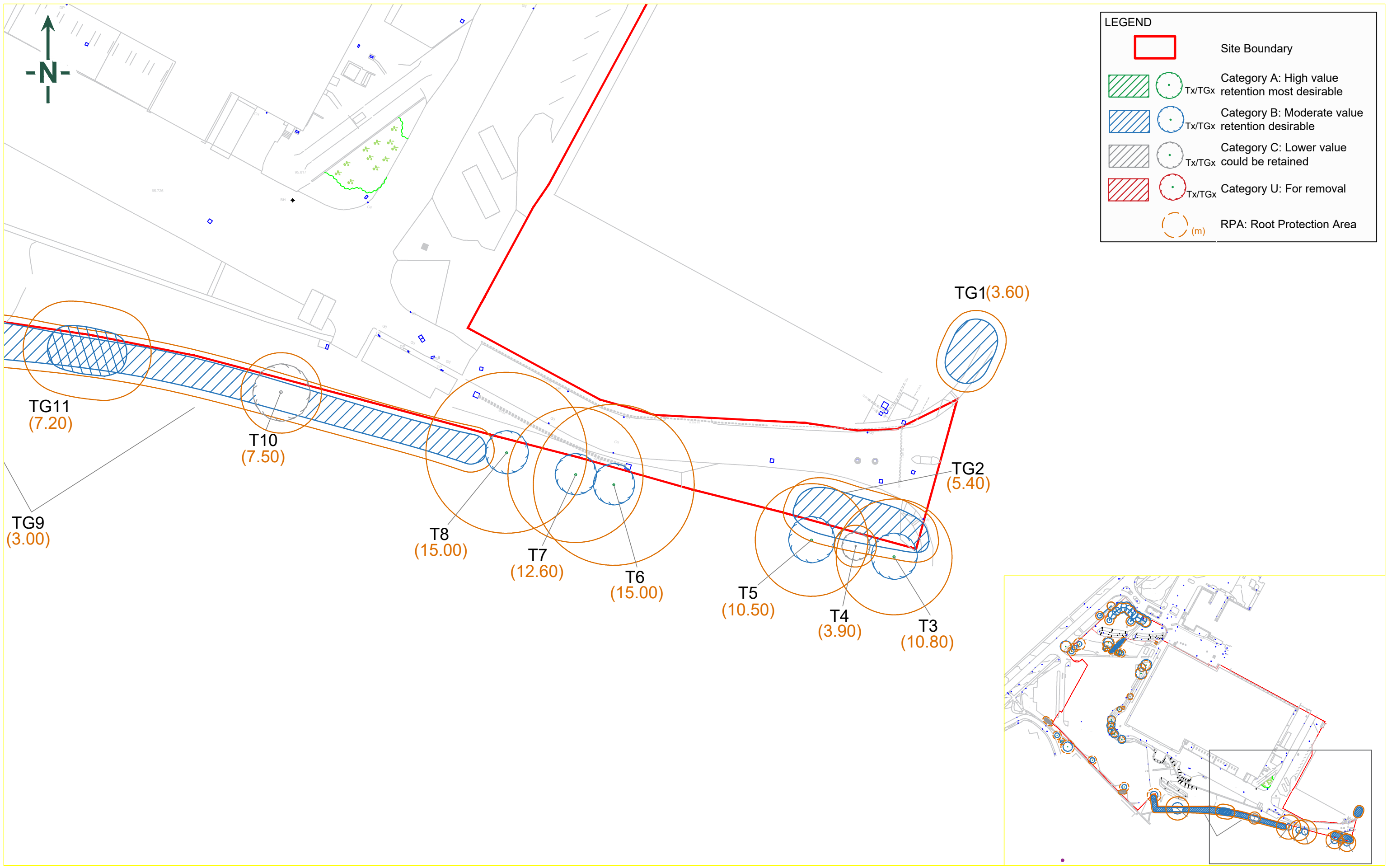


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Banbury 200, Southam Road
Banbury

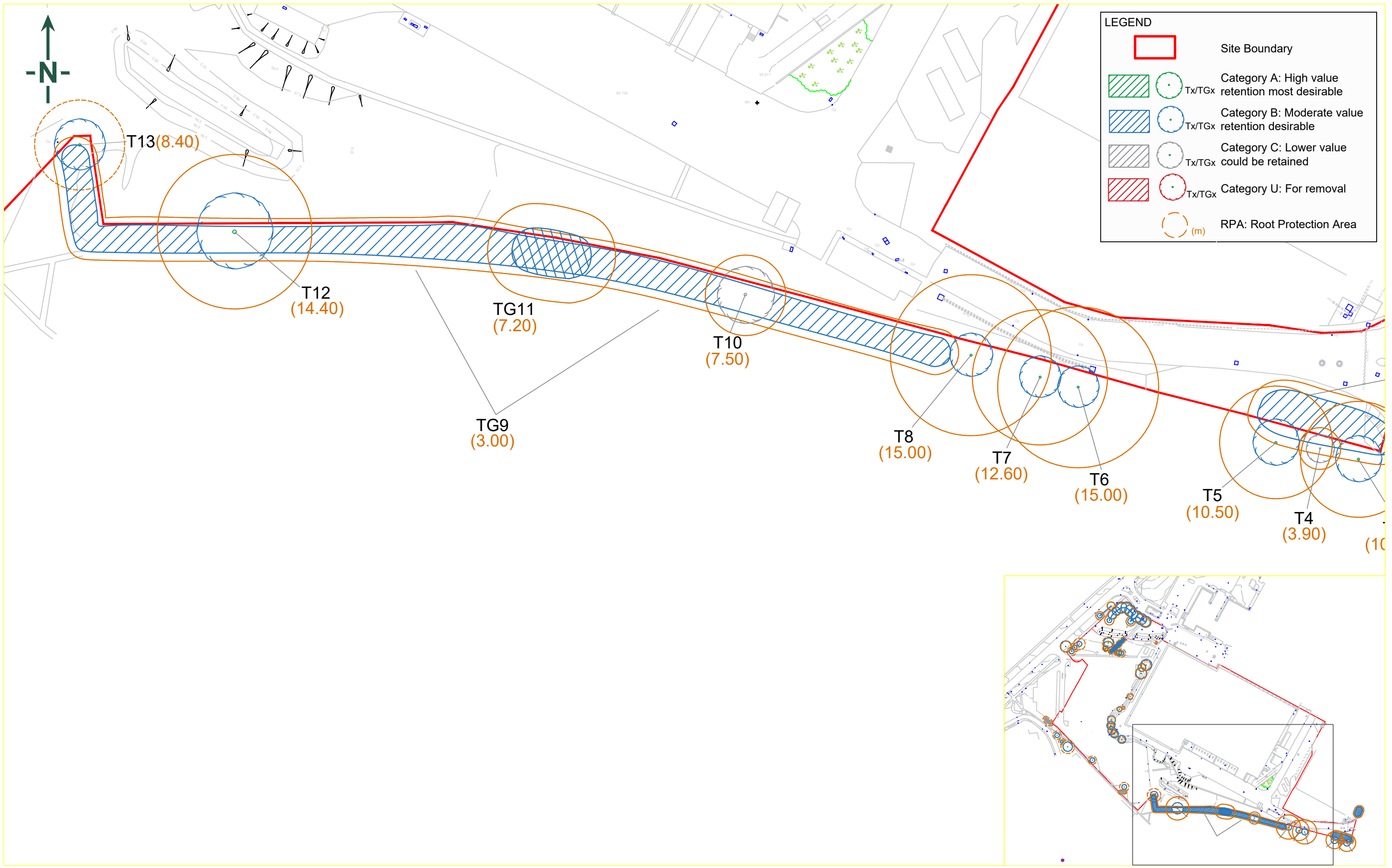
DRAWN BY: KE	SCALE: Not to Scale
CHECKED BY: CB	REVISION: 1
DATE: 12 August 2021	

PROJECT NO:
21-1553.02
FIGURE NO:
1d

Figures 2a-d – Tree Constraints Plan

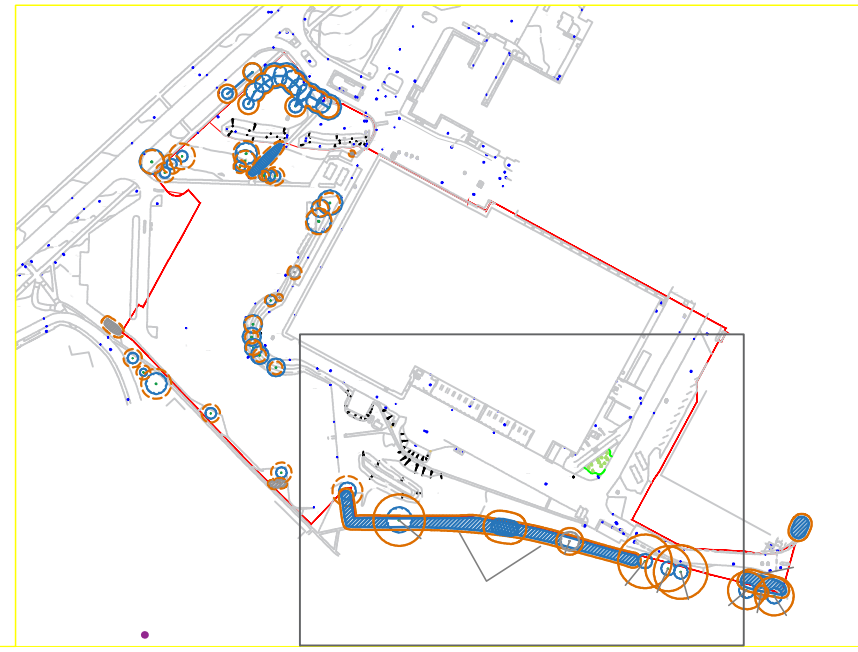


Site Plan Provided by Client

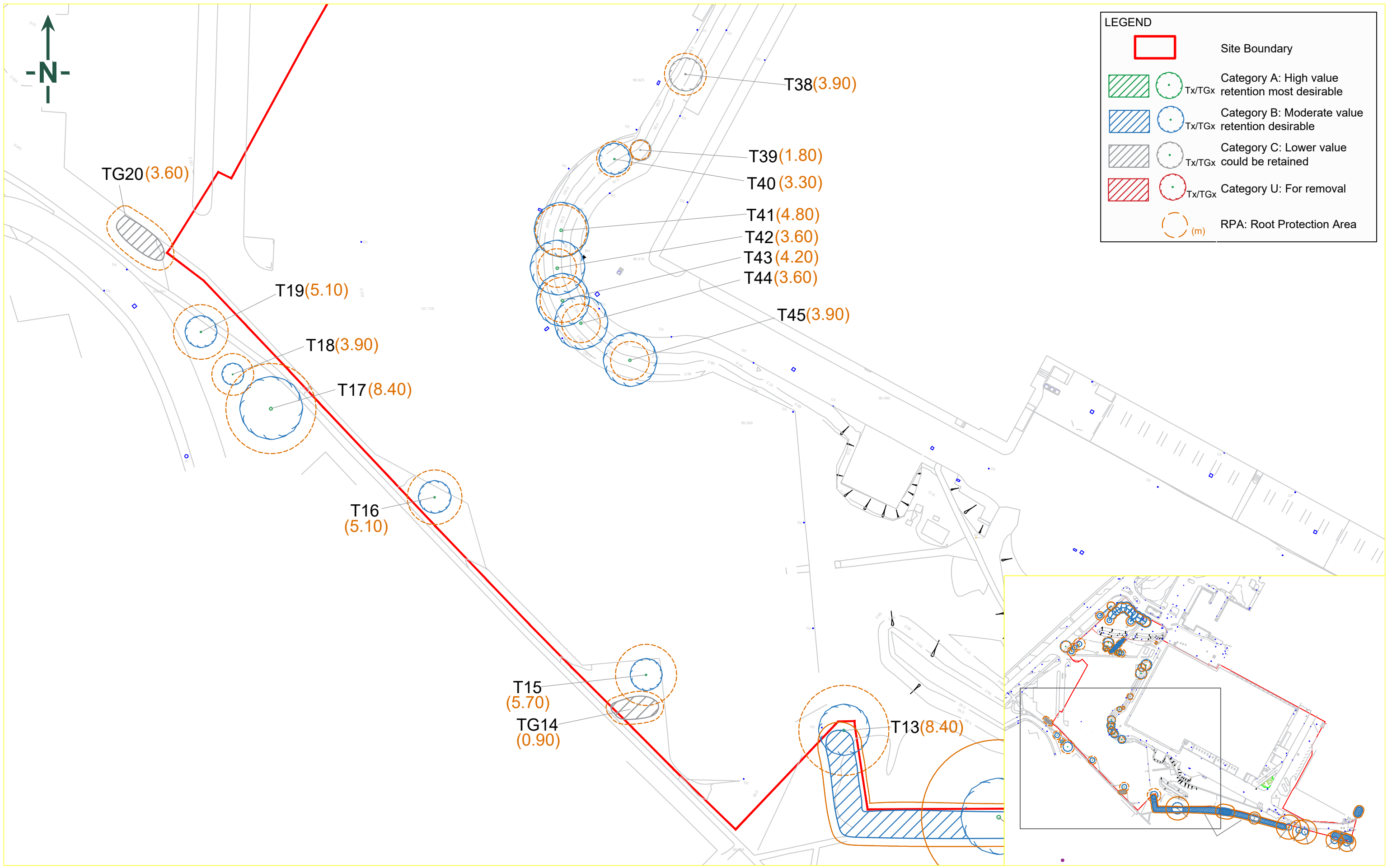


LEGEND

	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

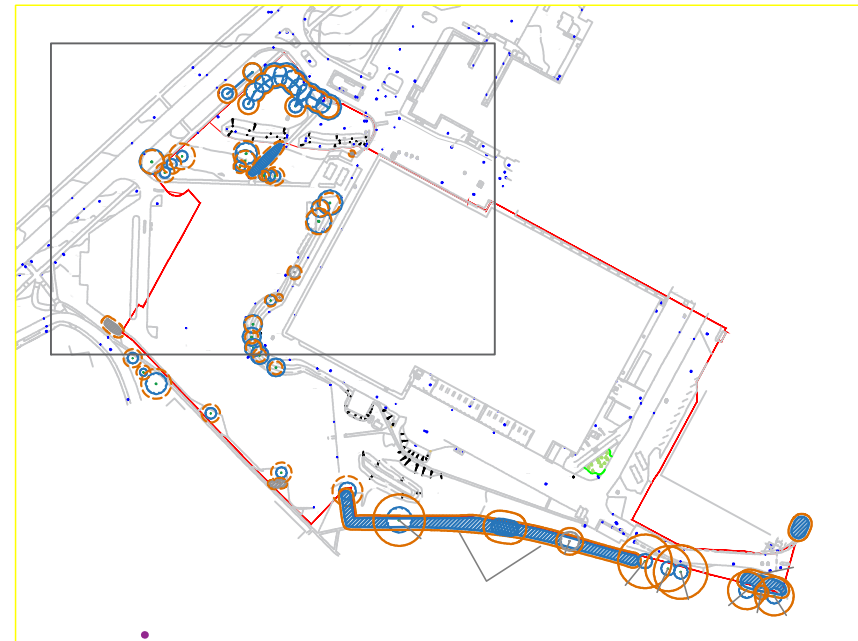
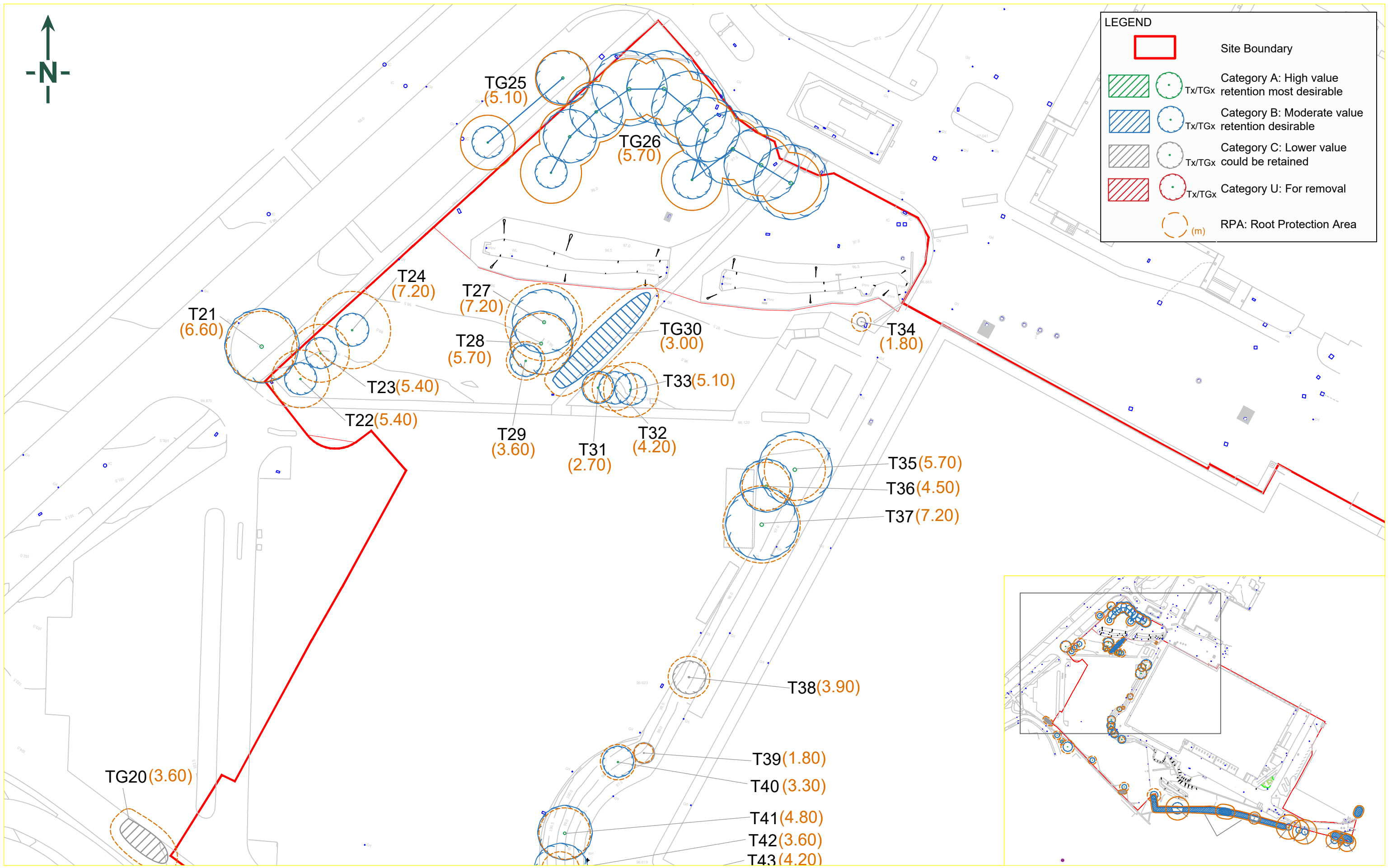


Site Plan Provided by Client



LEGEND

- Site Boundary
- Category A: High value retention most desirable (Green hatched area, Green circle Tx/TGx)
- Category B: Moderate value retention desirable (Blue hatched area, Blue circle Tx/TGx)
- Category C: Lower value could be retained (Grey hatched area, Grey circle Tx/TGx)
- Category U: For removal (Red hatched area, Red circle Tx/TGx)
- RPA: Root Protection Area (Orange dashed circle (m))



Site Plan Provided by Client

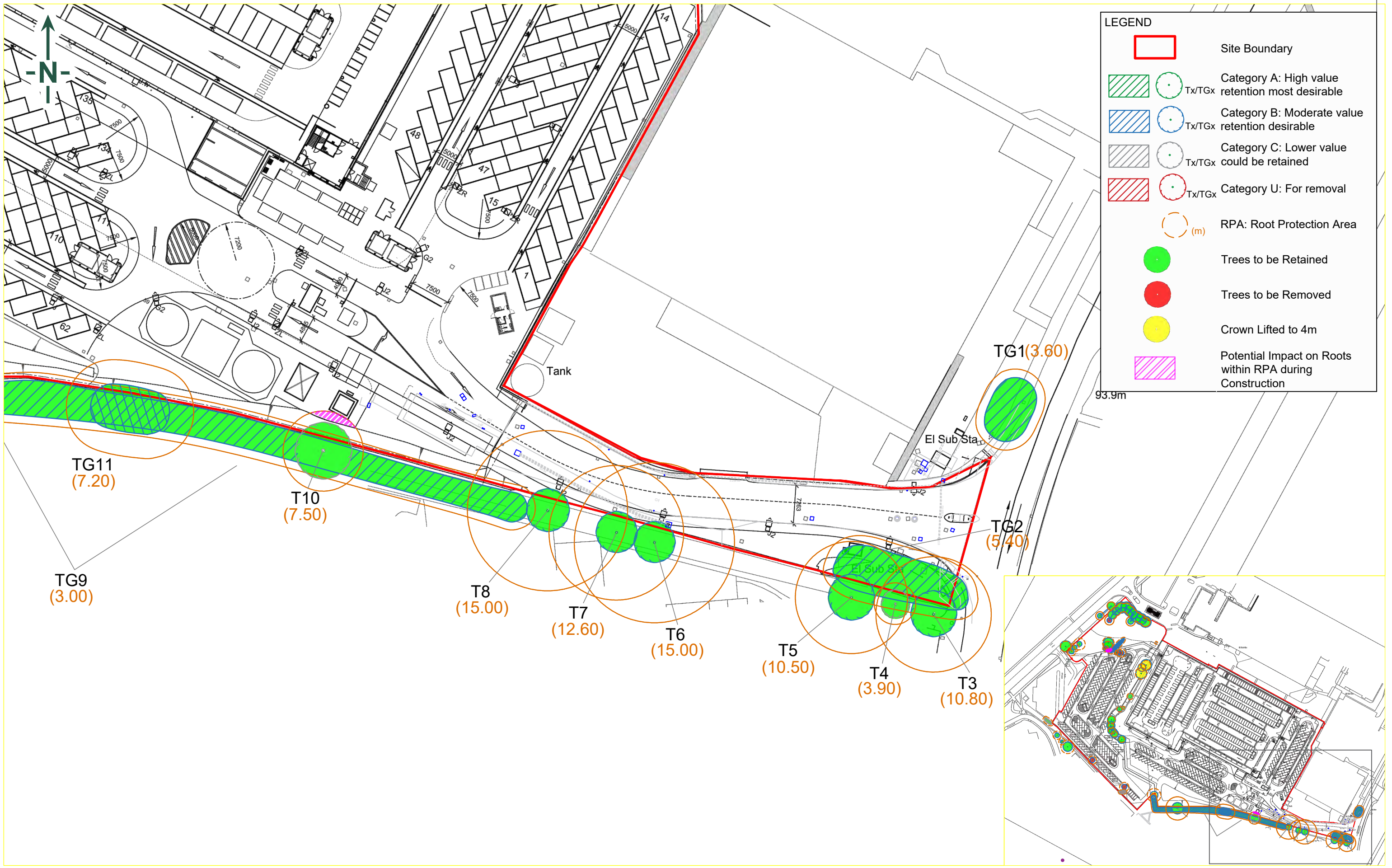


TITLE:
Tree Constraints Plan
Banbury 200, Southam Road
Banbury

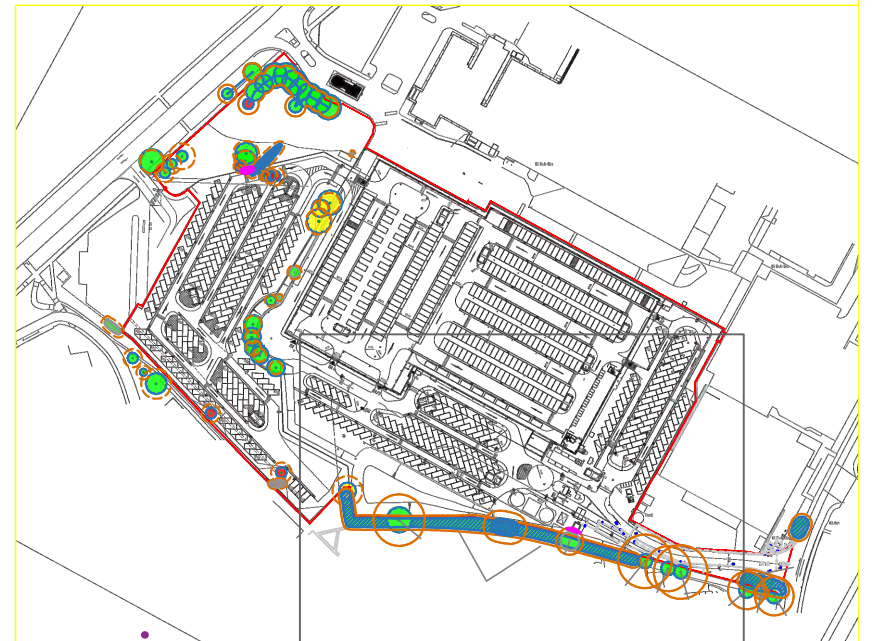
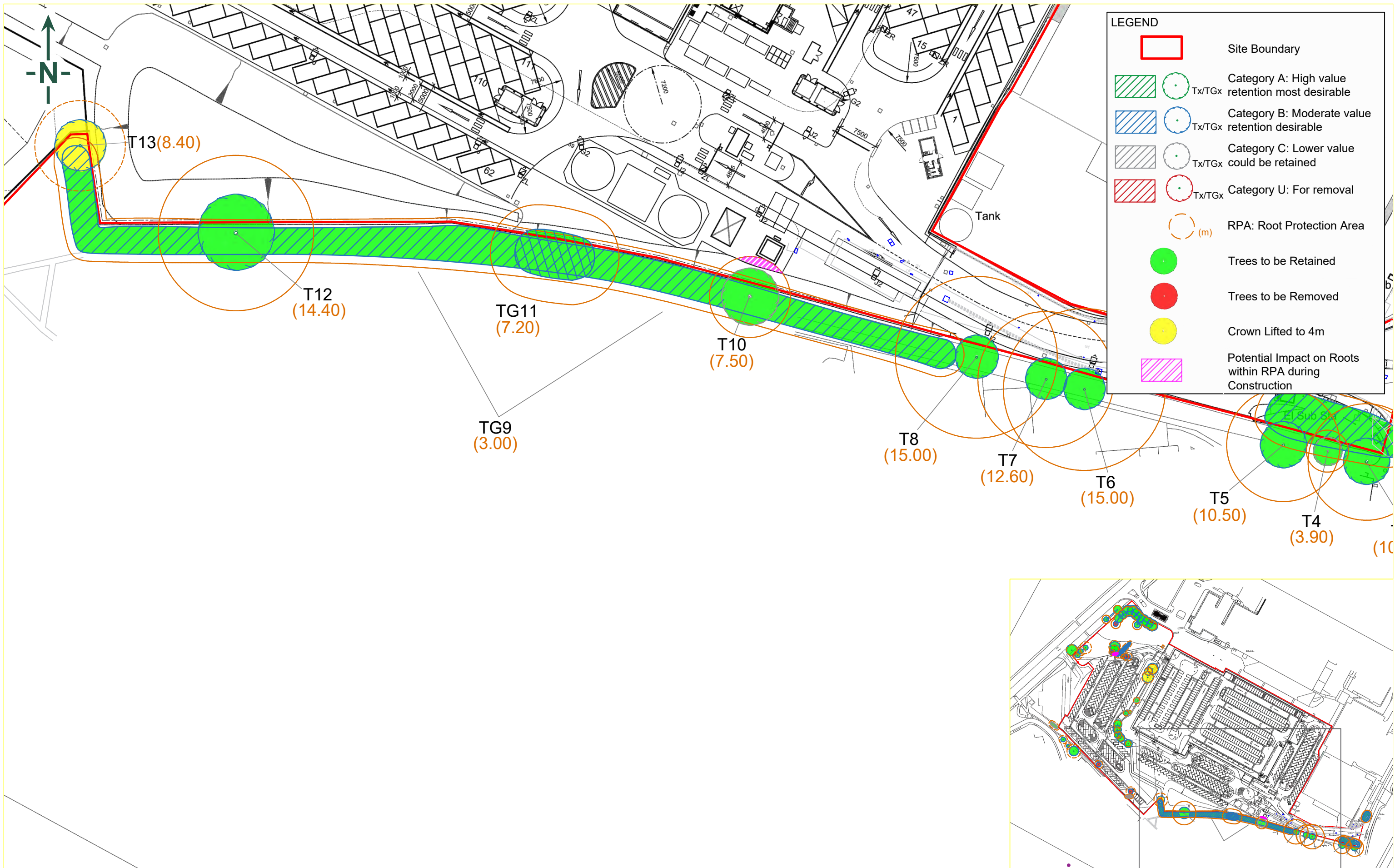
DRAWN BY: KE	SCALE: Not to Scale
CHECKED BY: CB	REVISION: 1
DATE: 12 August 2021	

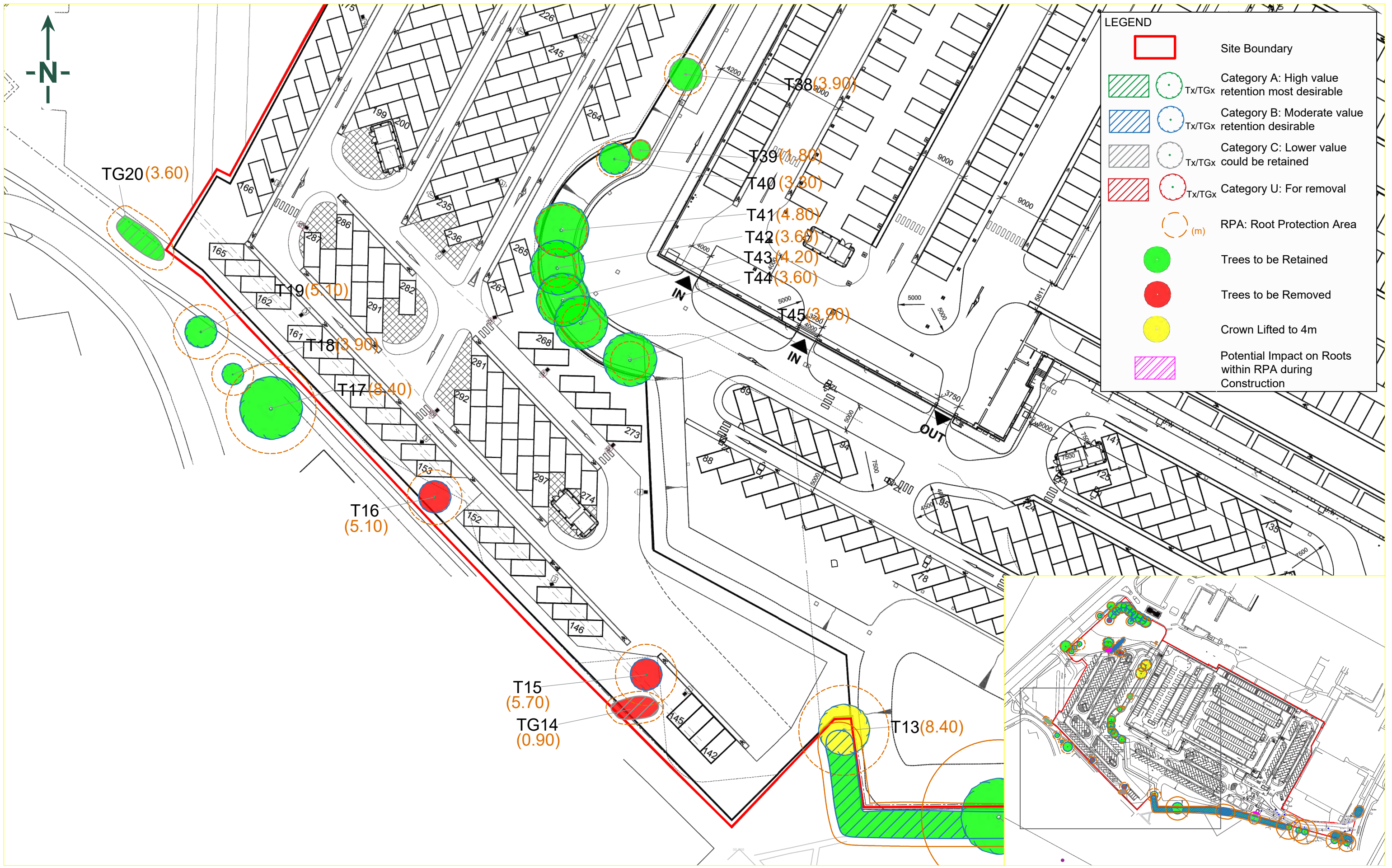
PROJECT NO:
21-1553.02
FIGURE NO:
2d

Figures 3a-d – Tree Impact Plan



Site Plan Provided by Client

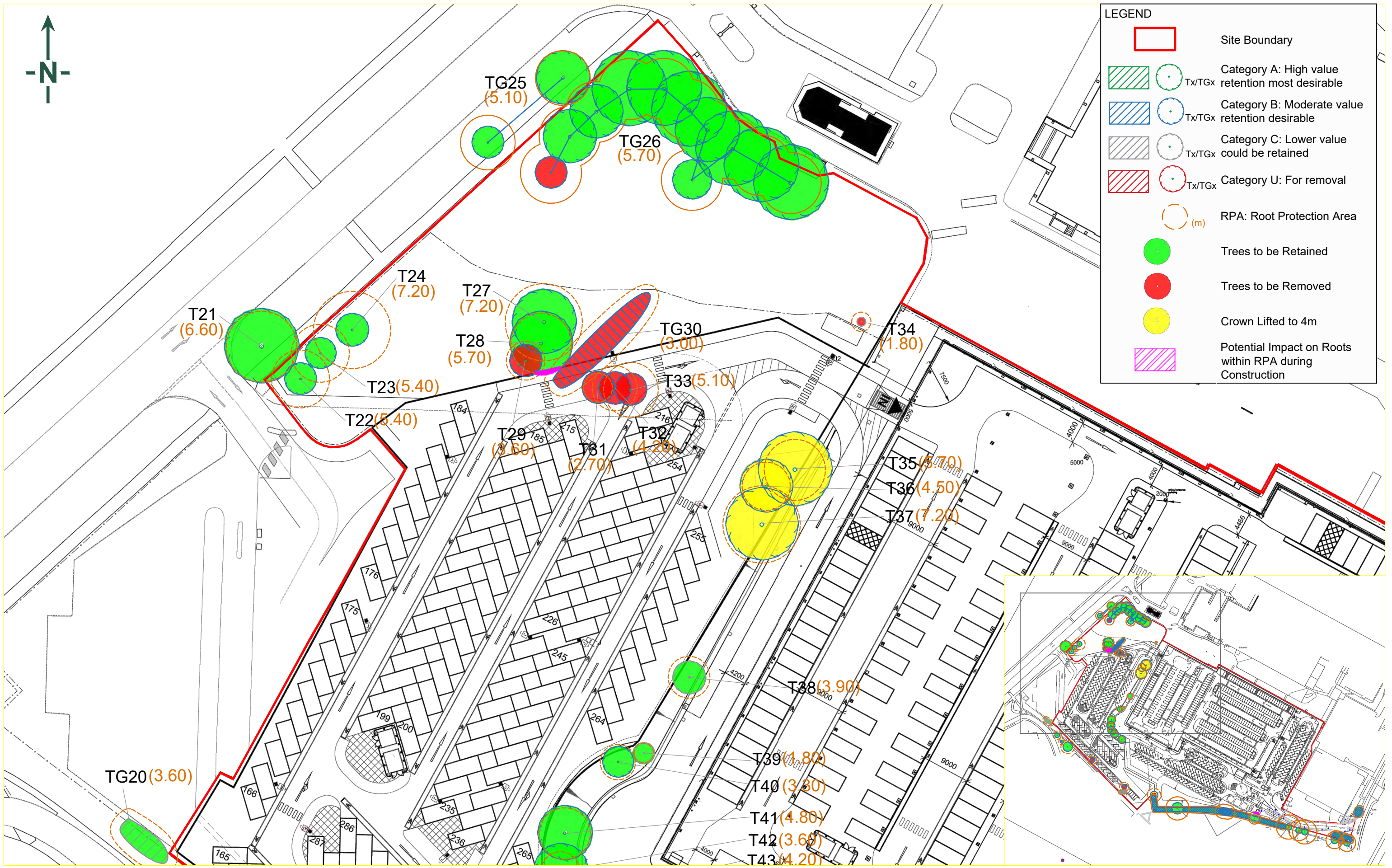






LEGEND

- 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)
- Trees to be Retained
- Trees to be Removed
- Crown Lifted to 4m
- Potential Impact on Roots within RPA during Construction



Site Plan Provided by Client



TITLE:
Tree Impact Plan
 Banbury 200, Southam Road
 Banbury

DRAWN BY: YA	SCALE: Not to Scale
CHECKED BY: OS	REVISION: 1
DATE: 04 November 2021	

PROJECT NO: 21-1553.02
FIGURE NO: 3d

Appendix A – References

References

BS4428:1989 - Code of Practice for General Landscape Operations. BSI British Standards, London.

BS3936-1:1992, Nursery Stock – Part 1: Specification for Trees and Shrubs. BSI British Standards, London.

BS3998:2010 - Tree Work - Recommendations. BSI British Standards, London.

BS4043:1989 - Transplanting Root-Balled Trees. BSI British Standards, London.

BS5837:2012 - Trees in Relation to Design, Demolition and Construction – Recommendations. BSI, London.

National House Building Council (2008). NHBC Standards Chapter 4.2 - Building Near Trees. NHBC, Amersham.

National Joint Utilities Group (2007). Volume 4: NJUG Guidelines for the Planning.

Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2) – Operatives Handbook.

Appendix B – BS5837:2012 Tree Schedule

BS5837:2012 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
TG1	Lime	<i>Tilia sp.</i>	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	<i>Acer pseudoplatanus</i> <i>Tilia sp.</i>	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	F	20-40	B2	5.4	Sever ivy
T3	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	
T4	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	
T5	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	
T6	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	
T7	Lombardy poplar	<i>Populus nigra</i> '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	<i>Populus nigra</i> '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	<i>Crataegus monogyna</i> <i>Acer campestre</i> <i>Ilex aquifolium</i> <i>Prunus</i> sp. <i>Sorbus aucuparia</i> <i>Fraxinus excelsior</i> <i>Sambucus nigra</i>	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	<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.	P	<20	C2	7.5	
TG11	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. 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	<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. Scattered deadwood at base.	F	20-40	B2	14.4	
T13	Field maple	<i>Acer campestre</i>	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	<i>Taxus baccata</i> <i>Salix</i> sp. <i>Fraxinus excelsior</i>	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	<i>Sorbus aria</i>	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	<i>Sorbus aria</i>	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 <i>Cuprocypariss leylandii</i>	M	16	M S	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	<i>Acer sp.</i>	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	<i>Acer sp.</i>	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	<i>Sambucus nigra</i> <i>Prunus sp.</i>	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	<i>Acer sp.</i>	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	<i>Betula pendula</i>	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	<i>Robinia pseudoacacia</i>	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	<i>Robinia pseudoacacia</i>	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	<i>Acer sp.</i>	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	<i>Prunus sp.</i> <i>Platanus x hispanica</i>	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

				M S									cherries split by 1.5 m						
T27	False acacia	<i>Robinia pseudoacacia</i>	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	<i>Robinia pseudoacacia</i>	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	<i>Acer</i> 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	<i>X Cuprocyparis leylandii</i>	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	<i>Betula pendula</i>	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	<i>Betula pendula</i>	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	<i>Carpinus betulus</i>	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	<i>Prunus</i> sp.	Y	6	M S	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	<i>Platanus x hispanica</i>	SM	14	S	475	3	6	6	6	6	No visual defects	Single stem, vertical	Rounded, balanced canopy	Thin ivy cladding on main stem.	F	>40	B2	5.7

T36	Sycamore	<i>Acer pseudoplatanus</i>	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	<i>Platanus x hispanica</i>	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.	F	>40	B2	7.2
T38	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
T39	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
T40	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
T41	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
T42	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
T43	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
T44	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
T45	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

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).				

Appendix C – Temporary Protective Fencing Specification

Temporary Protective Fencing Specification

Temporary Protective Fencing Specification

- ▲ **Construction Exclusion Zones (CEZs)**, enclosed by **Temporary Protective Fencing**, as detailed below and to be agreed with the Local Planning Authority (LPA), shall:
 - ▲ Be retained in place throughout the development process, as specified in the 'Temporary Protective Fencing Construction' section below and detailed in BS5837:2012 ;
 - ▲ Be sited in the area(s) defined by the Root Protection Areas or, if applicable, the CEZ, as detailed on the associated Tree Plan;
 - ▲ Be erected prior to any construction, demolition or excavation works and remain in place for the duration of the project;
 - ▲ Preclude any delivery of site accommodation and/or materials and/or plant machinery;
 - ▲ Preclude all construction related activity, with the sole exception of specified arboricultural works and any other works to be carried out under supervision that have been agreed by all parties; and
 - ▲ Preclude the storage of all development related materials and substances including fuels, oils, additives, cement and/or any other deleterious substance. Any incursion into CEZs must be by prior arrangement, following consultation with the LPA.

Temporary Protective Fencing Construction

- ▲ Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 m in height;
- ▲ The panels shall butt together and be securely fixed to a scaffold framework, as per 3 to 5 below;
- ▲ The scaffold framework shall comprise of upright poles of at least 3.0 m in length driven no less than 0.6 m into the ground at maximum 3.0 m centres with horizontal and diagonal poles fixed to the uprights, as per 4 to 5 below;
- ▲ The two horizontal rail poles shall be attached to the uprights at heights of 0.6 and 1.8 m with 3 no. clamps to each joint;
- ▲ The diagonal scaffold pole struts be clamped to the top rail of the scaffold framework at a 45° angle and extend back into the CEZ and clamped to a 0.7 m length of scaffold tube that shall be driven no less than 0.5 m into the ground;
- ▲ No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts;
- ▲ A 600 mm x 300 mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure A, below) shall be fixed to every 10 m length of protective fencing; and
- ▲ On completion and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the LPA shall inspect and approve the Temporary Protective Fencing.