

Arboricultural Report

Phoenix Investments Ltd

Rampant Lion Public House
Anson Road
Victoria Park
Manchester
M14 5BZ

URBAN GREEN
arboriculture
landscape
ecology

Report Summary

The pie charts to the far right present key statistics found within our survey. The bar charts to the right indicate the age distribution, species distribution and the works we have recommended. Other sections within the report summary are self-explanatory.

Site Location: 17 Anson Road, Victoria Park



Extent of the survey

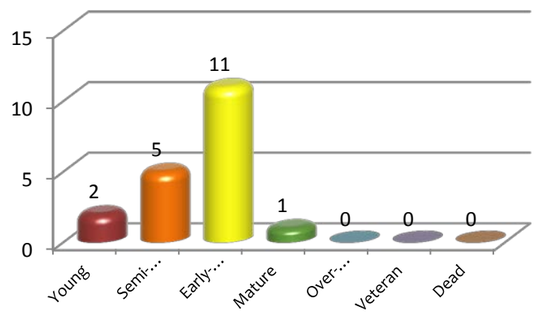


Site location

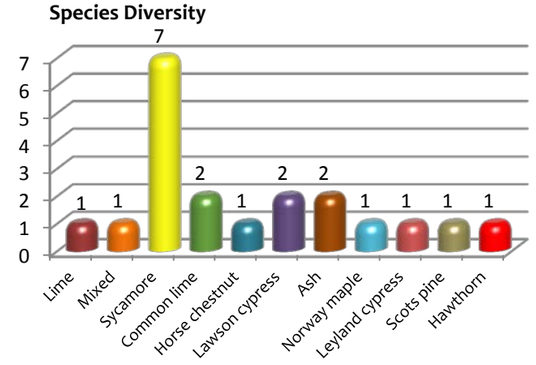
Summary

- A survey was conducted to BS5837. The condition of all trees on site was assessed and a Retention Category was allocated. Tree positions and Root Protection Areas are plotted on a Tree Constraints Plan.
- No Arboricultural Impact Assessment has been conducted at this stage.
- We recommend that this report and the constraints plan are used within the design process to help achieve a proposal with minimal impact.
- Where possible category A and B trees should be retained and works within their Root Protection Area should be undertaken in a sympathetic manner. General advice is included within this report as to how this may be achieved.
- Upon instruction Urban Green will be happy to provide Impact Assessments to assist the design process and an Arboricultural Method Statement to ensure that the retained trees are not damaged during the construction process.

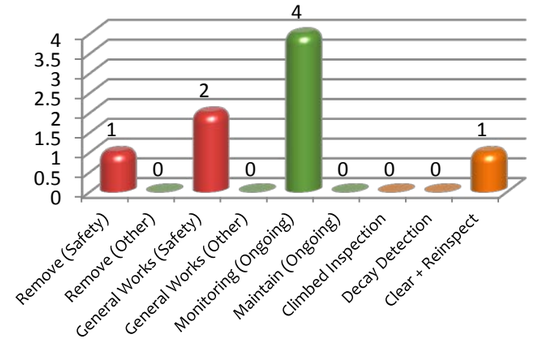
Age Distribution



Species Diversity

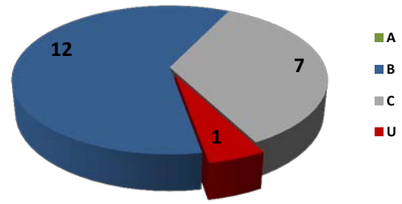


Recommended Works

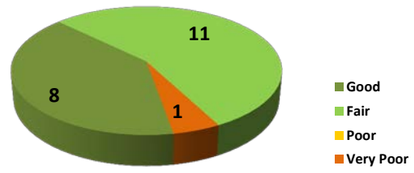


Trees surveyed as individuals: 16
groups: 4
hedges: 0
woodlands: 0

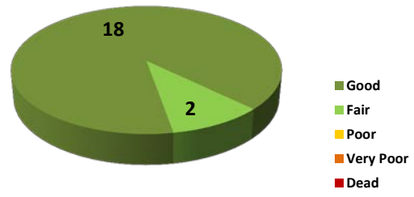
Retention Categories



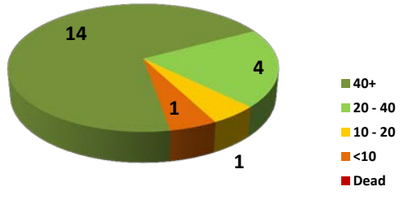
Structural Condition



Physiological Condition



Life Expectancy



Contact Details.

Local Authority:	Manchester City Council	Tel.	0161 234 4516
Architect:	Donn Design Limited	Tel.	0161 480 9900
Arboricultural Consultant:	Scott Fitzgerald	Tel.	0161 637 5242

Tree Protection Status

We are informed that:

- The site is within a conservation area.
- There are no TPOs affecting trees within the site.

See Section 4 for further details.

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1. Introduction

1.1. Instructions and references

1.1.1. All trees, regardless of their statutory status, are a material consideration in a planning application. It is therefore essential that the potential effects of any Proposed Development on existing trees are fully assessed.

1.1.2. We have been instructed by Donn Design Ltd on behalf of the client to carry out an Arboricultural Survey to British Standard 5837:2012 guidelines at the site location and produce our findings in a report. We have also been instructed to provide an Arboricultural Impact Assessment to evaluate the impact on trees present and an Arboricultural Method Statement to provide detailed guidance on the protection of retained trees throughout the construction process.

1.1.3. A scaled plan has been provided with all tree positions already plotted.

1.1.4. A plan outlining the development proposals has been used to form the basis of the Arboricultural Impact Assessment in Section 5.

1.1.5. Scott Fitzgerald carried out the survey and assessment of trees on 4th September 2013. Weather conditions during the site visit were fine with good visibility.

1.2. Scope and limitations of the report

1.2.1. The report is designed to accompany a planning application following guidance set out in BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations.

1.2.2. The Arboricultural Impact Assessment (AIA) will appraise the Proposed Development in relation to its effect on surveyed trees and any potential impact on local amenity by appraising the following:

- General construction operations.
- Soil compaction in Root Protection Areas (RPAs).
- Foundation design in proximity to retained trees.
- Installation of hard services including drives and paths.
- Installation of utilities.
- Boundary treatments.
- Potential physical damage to roots, stems and aerial parts of trees.
- Removal or pruning of trees.
- New tree establishment.

1.2.3. The impact assessment will also appraise the effect that the retained trees may have on the development such as potential nuisance caused by excessive leaf/fruit litter, lighting levels within the proposed building and grounds and the potential damage to structures.

1.2.4. The Arboricultural Method Statement (AMS) is designed to advise on tree management and protection during the planning process. It should be read in

conjunction with guidance laid out in Appendix 4 – 'Recommendations for tree protection during construction'.

1.2.5. All processes that have the potential to impact on trees should be considered in the wider project management of the site. This can be done by instructing an arboricultural consultant as part of the management team. This will ensure that any works that can affect trees will be monitored and supervised throughout the project.

1.2.6. The report is based upon a visual inspection. The consultant shall not be responsible for events that happen after the date of the report due to factors that were not apparent at the time, and the acceptance of this report constitutes an agreement with the guidelines and the terms listed in this report.

1.2.7. Any defects seen by a contractor or the employer that were not apparent to the consultant must be brought to the consultant's attention immediately.

1.2.8. The consultant accepts no liability in respect of the trees unless the recommendations of this report are carried out under his supervision.

1.2.9. Assessing the potential influence of trees upon load bearing soils, beneath existing and proposed structures resulting from water abstraction by trees or rehydration of shrinkable soils was not included in the contract brief and is therefore not considered in the report. The consultant cannot be held responsible for damage arising from such action.

1.2.10. Trees have the potential to cause indirect damage to existing and proposed structures by desiccation of the soil. Where soils are suspected to be shrinkable, they should be analysed by laboratory testing to determine the plasticity index. This will allow management decisions to be made relating to foundation depths, new planting and the effect of tree removals.

1.2.11. Potentially hazardous trees are highlighted and appropriate recommendations are made. However, this report should not be seen as a substitute for a full tree risk assessment or management plan which are specifically designed to minimise risk and liability associated with responsibility for trees.

1.2.12. It is understood that the group of trees to the rear of site referred to as G2 within this report are to be removed as part of a separate planning application.

2. Site overview

2.1. Location

2.1.1. The site is situated in a medium density residential area to the south east of Manchester City Centre. The co-ordinates are 53°27'23.69"N, 2°12'56.52"W, the OS reference is SJ 8577495558 and the altitude is 48m above sea level.

2.1.2. The survey was limited to the area shown in Figure 1 which is sufficient to consider the impact of the proposals.



Figure 1 Extent of the survey.

2.2. Site description

2.2.1. The site consists of a detached building that was formerly used as a public house. There are hard surfaces immediately surrounding the building and tarmac-covered car parking spaces to the west and south west. There is a lawned area to the south east corner of site and vehicular access exists from Hope Road to the west and Anson Road to the south west.

3. Tree data schedule

3.1.1. The Tree Data Schedule in Appendix 1 contains information gathered during the survey conducted on 4th September 2013.

3.1.2. The reader should refer to Appendix 2 in order to correctly interpret the tree data.

3.1.3. All images within the Tree Data Schedule are diagrammatical only. Their purpose is to indicate, at a glance, the relative dimensions of each tree. The images are computer generated based on measurements recorded for stem diameter, crown spread, crown height and overall height.

4. Tree condition and recommendations

4.1.1. The recommendations found in the Tree Data Schedule in Appendix 1 are based on assessments from a health and safety perspective and are made regardless of the Proposed Development. Section 4 discusses in further detail our findings during the site visit in relation to the health and safety of the trees, and future users of the site.

4.2. Summary of findings

4.2.1. T1 is potentially hazardous and will require removal in order to prevent possible damage due to tree or limb failure. This should be prioritised as indicated on the Tree Data Schedule.

4.2.2. Trees which are potentially hazardous and require works in order to make them safe are T4 and T6. These works should be prioritised as indicated on the Tree Data Schedule.

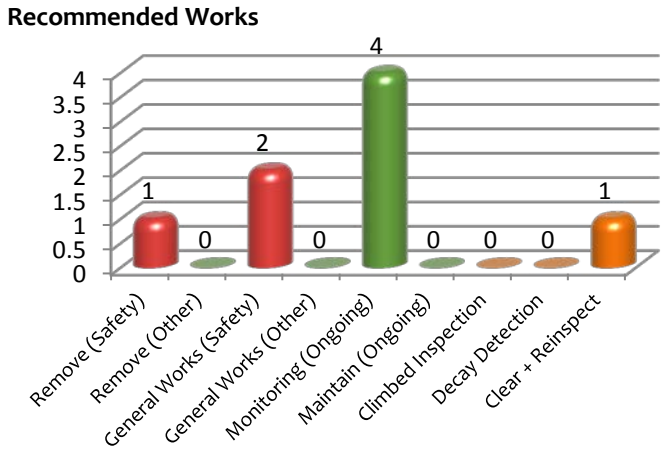
4.2.3. Trees which are considered to be in an acceptable condition at present but which have defects that require monitoring include T3, T5, T7 and T8. The Tree Data Schedule indicates the recommended inspection frequency.

4.2.4. T9 could not be fully inspected due to the presence of dense ivy. It is recommended that the ivy is removed.

4.2.5. All other trees are deemed to be in an acceptable condition and no further works have been recommended.

4.3. Work priority and future management

4.3.1. The Tree Data Schedule in Appendix 1 details what works are required to individual trees in order to ensure that they are in an acceptable condition. The chart below summarises these works:



4.3.2. The following table suggests a schedule for prioritizing works required to individual specimens, as outlined in the Tree Data Schedule in Section 3, in order to ensure that the associated risks are abated:

Priority	Definition	Tree Number
Urgent	As soon as possible	T1
Very High	Within 1 Month	None
High	Within 3 Months	T3, T4, T6
Moderate	Within 1 year	T5, T7, T8, T9
Low	Within 3 years	None

4.3.3. Upon completion of any recommended works, the trees will be in an acceptable condition from a health and safety perspective. However, they should be regularly inspected according to the following suggested schedule:

Inspection Frequency (years)	Tree Number
0.5	None
1	None
1.5	T3, T4, T5, T6, T7, T8, T9, T10, T11, G12, T13, T14, G15
3	G2, T16, T17, G18, T19, T20

4.4. Tree protection status

4.4.1. We have been informed by the planning department at Manchester City Council that the site is within a conservation area and there are no Tree Preservation orders (TPOs) affecting trees within the site.

4.5. Tree protection – general advice

4.5.1. It is recommended that the local authority is consulted before any tree works are undertaken, as new TPOs may have been created since the time of enquiry, and heavy fines exist for unauthorised works to protected trees.

4.5.2. A TPO can be overridden by planning consent, where tree removal is necessary to enable the Proposed Development to proceed.

4.5.3. All works to protected trees require consent from the local authority, including pruning. However, this does not include the removal of dead wood, which is exempt. Although dead and dangerous trees are exceptions to a TPO, it is advisable to give the local authority five days' notice in writing of any intended removal.

4.5.4. In a conservation area, all trees are effectively protected. Where tree work is required in a conservation area, the local authority must be given six weeks'

notice of intent, which allows them to either make a TPO or give consent for the intended work. The proposed tree work can proceed after six weeks, if the local authority has not responded.

5. Arboricultural Impacts

5.1. Summary of the development

5.1.1. There are plans to extend the existing building and create a disabled access to the west elevation and to extend to the north elevation. There are also plans to upgrade the existing car parking spaces.

5.2. Tree constraints

5.2.1. BS 5837:2012 recognises that conflicting requirements of the planning system for development means that trees are only one factor which need to be taken into consideration. Although there may be certain specimens that can pose significant constraints to development due to their importance, it is essential that inappropriate tree retention is avoided.

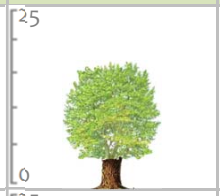
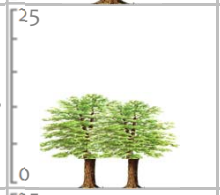
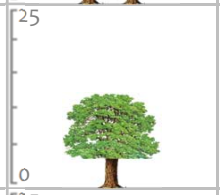
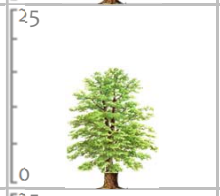
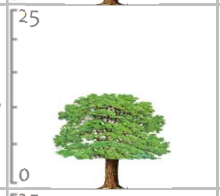
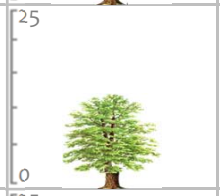
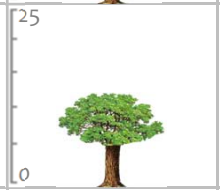
5.2.2. Although the proposals for the disabled access are within a small percentage of the Root Protection Area (RPA) of retained trees, minimal disturbance is anticipated as the area is currently tarmac covered. The foundations of proposed extension works are outside of RPAs.

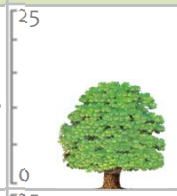
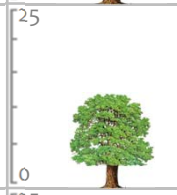
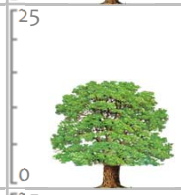
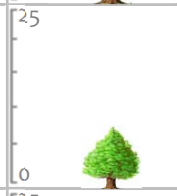
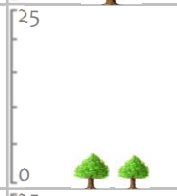
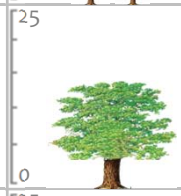
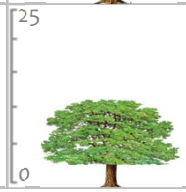
5.3. Tree protection during construction

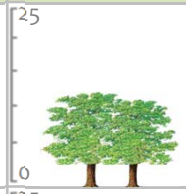
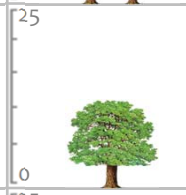
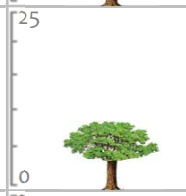
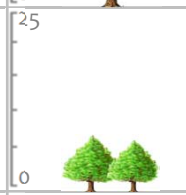
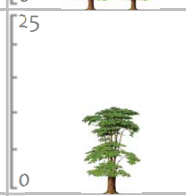
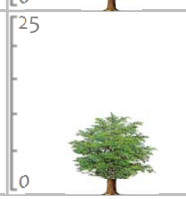
5.3.1. As long as existing surfaces are retained, there is minimal disturbance anticipated to retained trees. However, the main stems of T3 to T10 will require protection by temporary protective fencing in order to avoid direct damage. Further information regarding temporary protective fencing can be found in Section 5 of Appendix 4.

Appendix 1 - Tree Data Schedule

- The following pages contain information gathered during the site survey.
- The reader should refer to Appendix 1 in order to correctly interpret the tree data.
- All images within the Tree Data Schedule are diagrammatical only. Their purpose is to indicate, at a glance, the relative dimensions of each tree. The images are computer generated based on measurements recorded for stem diameter, crown spread, crown height and overall height.

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	LB Height	LB Direction	Diameter (cm)	Crown Spread (m) N W E S	Scaled Tree Diagram (m)	Notes	Recommendations Priority	Recommendations Inspect Freq (yrs)	Physiological Condition Structural Condition	Life Expectancy (yrs) Retention Category
T1	Mature **Lime** Tilia sp	17	3.5			670	10 0 5 0		1: Tree has failed at ground level causing damage to brick wall.	Remove. Urgent	N/A	Fair Very Poor	<10 U
G2	**Mixed** Species	av 12	av 3.5			av 350	av 4.5 4.5 4.5 4.5 each		1: Group of mixed species trees situated in raised bed retained by 0.85m high wall. 2: Wall being damaged by large poplar. 3: Species present include poplar, sycamore, ash, elm, hawthorn.	No action required. n/a	3	Good Good	40+ B
T3	Early-Mature **Sycamore** Acer pseudoplatanus	11.5	4.5	5.5	SW	400	3.5 5 2.5 4.5		1: Lowest branch has been killed by girdling. 2: Main stem partially girdled by wire at 5.5m. 3: Light fittings at 4.5m. 4: Whole root system covered in hard surfaces.	Deadwood, monitor. High	1.5	Fair Fair	10-20 C+
T4	Early-Mature **Common Lime** Tilia x europaea	15.5	1.5	3	W	460	4.5 3 3.5 3		1: Whole root system covered in hard surfaces. 2: Epicormic growth prevented a detailed inspection. 3: Root system limited on west side due to retaining wall. 4: Deadwood throughout crown.	Remove vegetation and reinspect, deadwood. High	1.5	Good Fair	40+ B
T5	Early-Mature **Sycamore** Acer pseudoplatanus	12.5	3.5	3.5	S	440	5.5 5 4.5 3.5		1: Occasional pruning wounds due to crown lifting (cavities developing). 2: Whole root system covered in hard surfaces. 3: Root system limited on west side due to retaining wall.	Monitor. Moderate	1.5	Good Fair	20-40 B-
T6	Early-Mature **Common Lime** Tilia x europaea	12.5	1.5	5.5	E	450	3 4 3.5 3.5		1: Whole root system covered in hard surfaces. 2: Epicormic growth prevented a detailed inspection. 3: Root system limited on west side due to retaining wall. 4: Deadwood throughout crown.	Remove vegetation and reinspect, deadwood. High	1.5	Good Fair	40+ B
T7	Early-Mature **Sycamore** Acer pseudoplatanus	11.5	6	5	NE	470	3.5 4.5 5 3.5		1: Whole root system covered in hard surfaces. 2: Root system limited on west side due to retaining wall. 3: Reduction in vigour.	Monitor. Moderate	1.5	Good Fair	20-40 B-

Reference (G = Group, H = Hedge)	Age & Species	Height (m)	Crown Ht (m)	LB Height	LB Direction	Diameter (cm)	Crown Spread (m) N / W / E / S	Scaled Tree Diagram (m)	Notes	Recommendations: Priority	Recommendations: Inspect Freq (yrs)	Physiological Condition / Structural Condition	Life Expectancy (yrs) / Retention Category
T8	Early-Mature **Horse Chestnut** Aesculus hippocastanum	13.5	2.5	5.5	NW	560	N 4 / W 5 / E 4.5 / S 4		1: Multiple pruning wounds due to crown lifting. 2: Minor bark wound to main stem at 0.5m.	Monitor. Moderate	1.5	Good Fair	40+ B
T9	Semi-Mature **Sycamore** Acer pseudoplatanus	12	3	2	W	380	N 2.5 / W 5 / E 2 / S 3.5		1: Multi-stemmed at 2m with an unbalanced crown. 2: Good formation of wound wood. 3: Situated in raised bed. 4: Majority of root system under hard surfaces.	Remove ivy and re-inspect for defects. Moderate	1.5	Good Fair	40+ C
T10	Early-Mature **Sycamore** Acer pseudoplatanus	14.5	3	3	NE	570	N 7.5 / W 4 / E 4 / S 4.5		1: Situated in raised bed. 2: Majority of root system under hard surfaces. 3: Light fittings on main stem.	No action required. n/a	1.5	Good Good	40+ B+
T11	Semi-Mature **Lawson Cypress** Chamaecyparis lawsoniana	7	0			280	N 1.5 / W 1.5 / E 1.5 / S 1.5		1: Multi-stemmed at ground level with a narrow, upright habit.	No action required. n/a	1.5	Good Fair	40+ C
G12	Young **Lawson Cypress** Chamaecyparis lawsoniana	av 3	0			av 120	N av / W 1 / E 1 / S 1 each		1: Linear group.	No action required. n/a	1.5	Good Fair	40+ C
T13	Early-Mature **Ash** Fraxinus excelsior	13.5	4			560	N 5 / W 4.5 / E 3.5 / S 7.5		1: Multi-stemmed at 0.5m with a slightly unbalanced crown. 2: Included bark unions at 0.5m.	No action required. n/a	1.5	Good Fair	20-40 B
T14	Semi-Mature **Norway Maple** Acer platanoides	11	3	2.5	S	340	N 3.5 / W 7 / E 4 / S 7.5		1: Causing displacement of boundary wall.	No action required. n/a	1.5	Good Fair	20-40 B-

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	LB Height	LB Direction	Diameter (cm)	Crown Spread (m) N W E S	Scaled Tree Diagram (m) 9 0 9	Notes	Recommendations Priority	Recommendations Inspect Freq (yrs)	Physiological Condition Structural Condition	Life Expectancy (yrs) Retention Category
G15	Semi-Mature **Ash** Fraxinus excelsior	av 12	av 3			av 250	av 3.5 3.5 3.5 each		1: Small boundary group.	No action required. n/a	1.5	Good Good	40+ C
T16	Early-Mature **Sycamore** Acer pseudoplatanus	11	3	2	SE	340	4 2.5 3.5 4.5		1: Leaning on boundary fence and causing displacement of wall.	No action required. n/a	3	Good Good	40+ B-
T17	Early-Mature **Sycamore** Acer pseudoplatanus	7.5	4.5	4.5	N	300	4.5 3.5 3 4			No action required. n/a	3	Good Good	40+ B-
G18	Young **Leyland Cypress** x Cupressocyparis leylandii	av 6.5	av 1			av 120	av 1.5 1.5 1.5 1.5 each		1: Linear boundary group.	No action required. n/a	3	Good Good	40+ C
T19	Semi-Mature **Scots Pine** Pinus sylvestris	11	2			220	2.5 2.5 2.5 2.5			No action required. n/a	3	Good Good	40+ C+
T20	Early-Mature **Hawthorn** Crataegus monogyna	9.5	2			280	4.5 4.5 2.5 4.5		1: Twin-stemmed at ground level with a full crown.	No action required. n/a	3	Good Good	40+ B-

Appendix 2 - Tree Survey Schedule Explanatory Notes

This section explains the terms used in the **Tree Data Schedule** in Appendix 1.

A2.1 General

A2.1.1 **Numbering System:** Each item of vegetation has its own unique number prefixed by a letter such that:

- **T1**=Tree 1
- **G2**=Group 2
- **H3**=Hedge 3
- **W4**=Woodland 4

A2.1.2 **Age Categories:**

- **Young** Usually less than 10 years old.
- **Semi-Mature** Significant future growth to be expected, both in height and crown spread (typically below 30% of life expectancy).
- **Early-Mature** Full height almost attained. Significant growth may be expected in terms of crown spread (typically 30-60% of life expectancy).
- **Mature** Full height attained. Crown spread will increase but growth increments will be slight (typically 60% or more of life expectancy).
- **Veteran** A level of maturity whereby significant management may be required in order to keep the tree in a safe condition.
- **Over Mature** As for veteran except management is not considered worthwhile.

A2.1.3 **Species:** Common names and Latin names are given.

A2.1.4 **Height:** Measured from ground level to the top of the crown.

A2.1.5 **Crown Height:** Measured from ground level to the height at which the main crown begins. Where the crown is unbalanced it is measured on the side deemed to be most relevant. This is usually the side facing the area of anticipated development.

A2.1.6 **LB Height:** **(**Height of the lowest branch) is measured from ground level to the height at which the 1st significant branch emanates from the main stem. This information is not provided where the tree is multi-stemmed.

A2.1.7 **LB Direction:** Is the growth direction of the lowest significant branch (N, NE, E, SE, S, SW, W, NW)

A2.1.8 **Stem Diameter:** Taken at 1.5m above ground level where possible. On trees with two to five stems, the combined stem diameter is calculated as follows:

$\sqrt{(\text{stem diameter 1})^2 + (\text{stem diameter 2})^2 \ldots + (\text{stem diameter 5})^2}$

For trees with more than five stems, the combined stem diameter is calculated as follows:

$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$

A2.1.9 **Crown Height:** Measured from ground level to the height at which the main crown begins. Where the crown is unbalanced it is measured on the side deemed to be most relevant. This is usually the side facing the area of anticipated development.

A2.1.10 **Tree Diagram:** This scaled drawing is computer generated based on measurements taken for stem diameter, crown height and spread, and overall height. It is designed to help the reader rapidly assess the data. It is not an accurate representation of the form of the tree.

A2.1.11 **Crown Spread:** Measured N, E, S & W, taken from the centre of the stem and usually rounded up to the nearest half metre.

A2.1.12 **Notes:** Any relevant observations are recorded in the Notes section.

A2.1.13 **Recommendations:** Usually based on any defects observed and intended to ensure that the tree is in an acceptable condition.

A2.1.14 **Priority Scale:** Depending upon the threat posed by the tree, and the likelihood of failure, recommendations should be carried out according to the following priority scale:

- **Urgent** To be carried out as soon as possible.
- **Very High** To be carried out within 1 month.
- **High** To be carried out within 3 months.
- **Moderate** To be carried out within 1 year.
- **Low** To be carried out within 3 years.

A2.1.15 **Inspection Frequency:**

- An interval of 6 months, 1 year, 1.5 years or 3 years is allocated before the next inspection is due. Wherever practical, consideration should be given to seasonal changes so that deciduous trees are not always surveyed in winter when they have no leaves, or in summer when leaves may obscure branches within the upper crown.

A2.1.16 **Physiological Condition:**

- **Good** Healthy and with no symptoms of significant disease.
- **Fair** Disease present or vigour is impaired.
- **Poor** Significant disease present or vigour is extremely low.
- **Very Poor** Tree is dying.

A2.1.17 **Structural Condition:**

- **Good** Having no significant structural defects.
- **Fair** Some defects observed though no high priority works are required.
- **Poor** Significant defects found. Tree requires monitoring or remedial works.
- **Very Poor** Major defects which will usually require significant remedial works or tree removal.

A2.1.18 **Life Expectancy:** The estimated number of years before the tree may require removal. Classified as (<10), (10 – 20), (20 – 40), or (40+).

A2.1.19 **Retention Category:** These are explained in detail in Table 1 on the following page.

Tree retention categorisation

The categorisation of trees is applied to guide the site owner as to the quality and value of their existing tree stock. All trees greater than 75mm in diameter at 1.5m above ground level are surveyed and allocated a ***retention category*** which takes into account amenity value, condition and safe useful life expectancy. The categories are allocated independently of development proposals. BS 5837:2012 recommends using a cascade chart for categorisation purposes. **Table 1** below provides an explanation of retention categories used.

Trees to be removed		Colour on Plan
Category U includes trees of very low quality that offer little or no amenity value.	Trees that are in such a condition that they should be removed as a matter of good arboricultural practice regardless of given proposals.	RED
Trees to be considered for retention		**Colour on Plan**
Category A includes trees of a high quality, usually highly visible to the wider public.	Trees that are excellent examples of their species, usually mature, with a safe useful life expectancy of at least 40 years. Category A trees are likely to enhance a development and should be retained wherever possible	GREEN
Category B includes trees of moderate quality and amenity value.	Trees that are good examples of their species but may have defects or form that downgrade them from category A. Category B trees are usually mature or younger trees with the potential to reach A category in the future. Although the retention of these trees is desirable, some losses may be acceptable.	BLUE
Category C includes trees of low quality and amenity value.	Trees that are either young with a stem diameter less than 150mm or are unlikely to make a contribution for more than 10 years. The removal of these trees should be seen as acceptable in order to allow development to proceed. It may be possible to transplant younger specimens.	GREY
NOTE: Trees that are viewed as borderline and do not fit neatly into either of the categories are given a plus or minus rating (+/-) in the tree data schedule. Therefore C+ would denote a tree being borderline C/B although C is deemed to be the most appropriate category. Similarly B- would denote a tree being borderline B/C with B seen as the most appropriate category.		

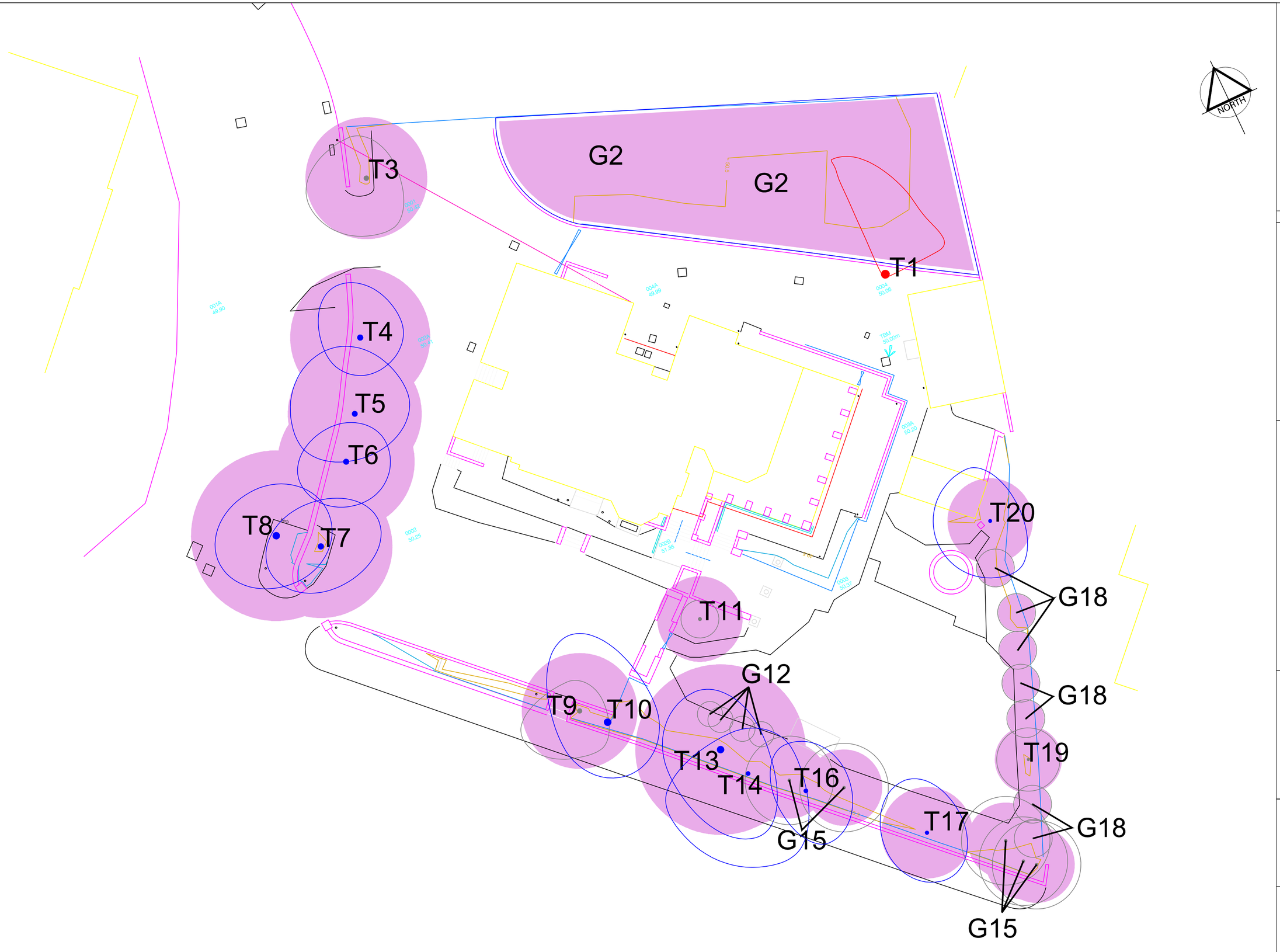
Table 1

Appendix 3 - Site Plans

The site plans referred to in the report follow this page which can include some or all of the following:

- Tree Constraints Plan
- Tree Removal Plan
- Tree Protection Plan
- Proposals

Although included plans are usually to scale, they are only intended to indicate positions of surveyed trees and dimensions should not be taken from these drawings.



Key	
T1	Tree number 1
G2	Group number 2
H3	Hedge number 3
	Retention category A tree
	Retention category B tree
	Retention category C tree
	Retention category U tree
	Root Protection Area (RPA)

BS 5837 RETENTION CATEGORIES

Category A:
Trees of high quality and amenity. Usually, mature trees with a significant life expectancy which would enhance any development. Retention of these trees is strongly encouraged.

Category B:
Trees of moderate quality and amenity. Usually mature trees, or younger trees with exceptional form. Retention of these trees is desirable though the removal of occasional specimens may be acceptable.

Category C:
Trees of low quality and amenity. The removal of these trees should be seen as acceptable in order to facilitate development.

Category U:
Trees whose structural condition is such that they should be removed regardless of development proposals.

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Client
Phoenix Investments Ltd
Project
Rampant Lion
Description
Tree Constraints Plan

Scale	Drawn by	Date
1:200 A2	DAL	05/09/13
Job number	Drawing number	Revision
10487	10487.T1	N/A

Appendix 4 - Recommendations for Tree Protection

1. General

1.1 All operations that could affect trees on and adjacent to the site must be considered as part of the project management of the Proposed Development. It is therefore imperative that an arboricultural consultant is appointed as part of the design and management team to advise on pre-development issues and supervise on-site operations.

1.2 The arboricultural consultant may also have an advisory role in the preparation of site including tree surgery works and the protection of trees during demolition processes.

1.3 This document accompanies the Arboricultural Impact Assessment (AIA) and should be read in conjunction with the Tree Constraints Plan. It is essential to adhere to the recommendations within this document during on-site operations to ensure the successful retention of trees as part of the Proposed Development. Compliance with the Arboricultural Method Statement (AMS) will be a requirement of all relevant contracts associated with the Proposed Development.

2. The objective of this document

2.1 This document aims to provide general guidelines to onsite personnel that must be followed when working close to trees on construction sites. It is typically included as additional, generic guidance as an appendix to a site specific AMS. All site personnel should have access to this document and be made aware of any sections that may be relevant to their specific area of work.

2.2 The developer will inform the Local Planning Authority (LPA) within twenty four hours if the arboricultural consultant is replaced.

3. RPAs explained

3.1 The RPA is an area of ground around the base of a retained tree, which is calculated in relation to the stem diameter, where disturbance should be kept to a minimum and avoided if at all possible.

3.2 The majority of tree roots grow within the upper 600mm of the soil profile where most nutrients are available as the result of the decomposition of organic matter close to the surface. Rooting conditions become less favourable at depth as the soil density increases, creating anaerobic conditions.

3.3 It is essential that roots are protected from construction works including physical damage from excavation and changes in soil structure from compaction and changes in ground levels.

4. Defining the RPA

4.1 The RPA is defined on the Tree Protection Plan by black circles surrounding retained trees. Where necessary, temporary protective fencing will be placed in these positions, beyond which is a construction exclusion zone. This zone precludes all construction activity, with the sole exception of specified arboricultural works that have been agreed by all parties and under the supervision of an arboriculturist.

4.2 Temporary protective fencing will need to be installed prior to any demolition or construction works and delivery of site accommodation and materials.

4.3 There will be no storage or tipping of any materials, including fuels, oils, adhesives, cement or any other deleterious substance within 0.5m of the construction exclusion zone.

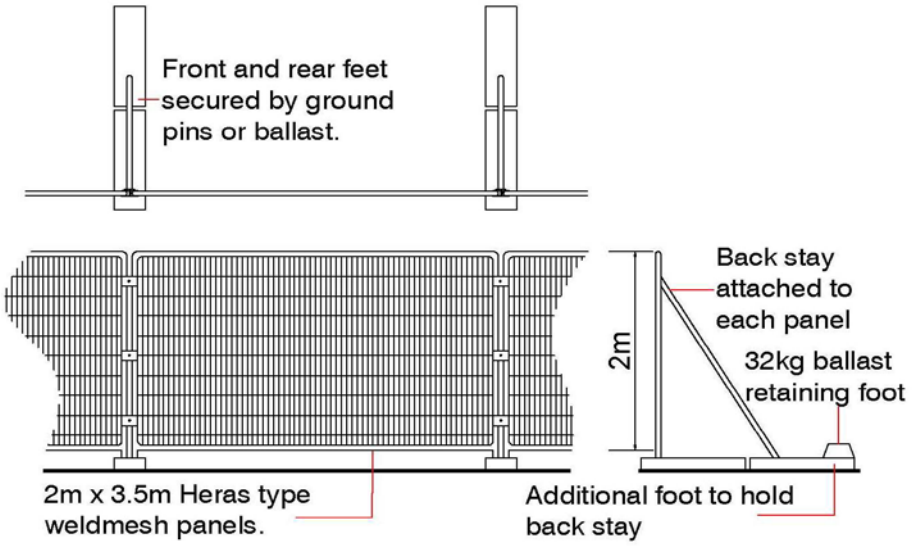
4.4 No fires will be lit within 20 metres of the stem of any tree that is to be retained.

4.5 Any incursion into the construction exclusion zone must be by prior arrangement, following consultation with the LPA.

5. Temporary protective fencing

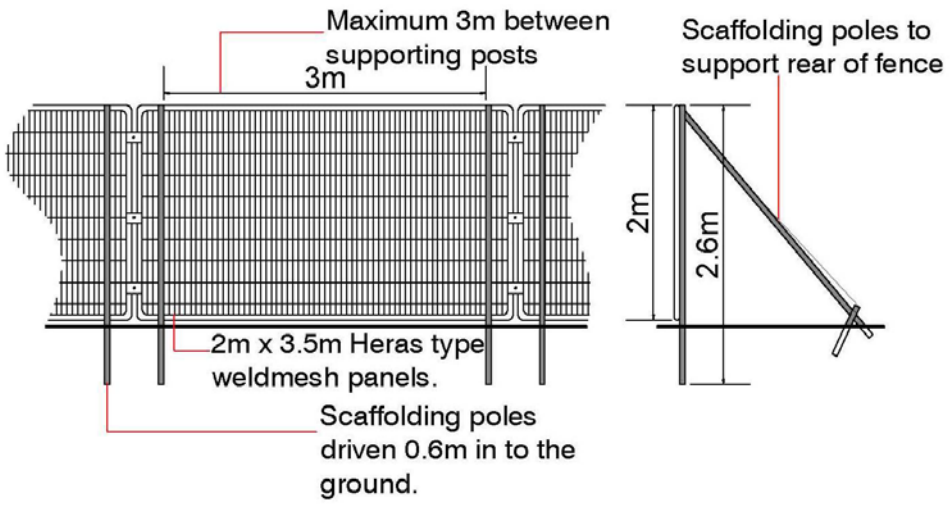
5.1 RPAs will be protected by 'Heras' steadfast type fencing with back stay supports where construction activity is expected to be minimal. (Fig 1. below)

Fig 1. Temporary Protective Fencing with back stay supports



5.2 In areas of site where construction activity is expected in close proximity to RPAs, it will be necessary to employ the more robust 'in-ground' system following BS 5837 guidelines. (Fig 2. below)

Fig 2. Temporary Protective Fencing

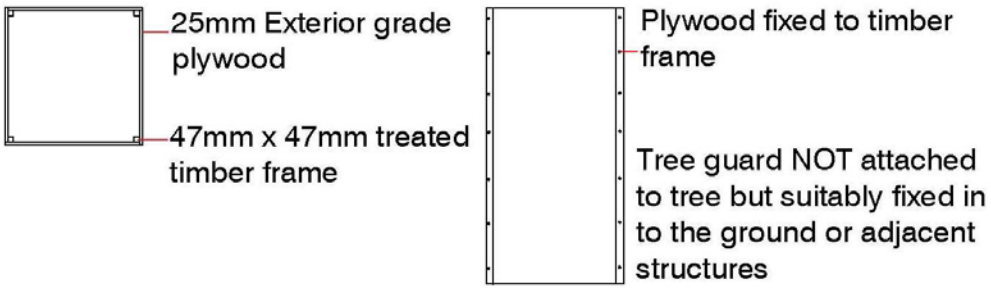


5.3 The 'in-ground' system involves driving vertical scaffold poles approximately 0.6m into the ground onto which are affixed horizontal scaffold poles and bracing struts. 2m high anti-climb weldmesh panels are then wired to the scaffold framework. The vertical scaffold poles should be at a maximum of 3m apart.

5.4 No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to the tree roots when locating uprights.

5.5 Where space is limited, it is sometimes necessary to construct a temporary tree guard to physically protect the main stem of the tree (Fig 3. below). This should be made by joining together 4 X 25mm Exterior Grade pieces of plywood to 47mm X 47mm treated timber posts to create a box shaped frame which is attached to the ground or adjacent structures. No fixings are to be made to the tree and suitable ground protection should be employed within the RPA of the tree (see Section 12).

Fig 3. Temporary Protective Fencing



5.6 A 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" shall be fixed to every 10m of protective fencing. (Fig 4. below)

Fig 4. Tree Protection Sign



6. Excavation in the RPA

6.1 Any necessary excavation must be carried out using hand tools to avoid direct damage to the protective bark of tree roots. It may be possible in some instances to use specialised equipment such as high air pressure machinery to excavate the soil with minimal disturbance to roots.

6.2 Exposed roots will be wrapped in dry, clean Hessian sacking to prevent desiccation and to protect from rapid temperature changes. In warmer weather, the sacking should be kept moist by regular watering. Sacking should be removed before backfilling.

6.3 Roots less than 25mm diameter may be pruned back, preferably to a growing point. A sharp cutting tool such as bypass secateurs or a handsaw should be used to leave the smallest wound possible. Roots greater than 25mm in diameter should be retained wherever possible.

6.4 Root pruning should be carried out under the supervision of the arboricultural consultant or the Local Authority Tree Officer to ensure that only roots necessary to facilitate the development will be removed and the long-term well-being of retained trees is maintained.

6.5 Backfilling of any excavation should be carried out by hand to avoid direct root damage by excessive compaction and should include, where possible, the replacement of inert granular material mixed with sharp sand (not builder's sand) around retained roots.

7. Demolition and removal of surfaces in the RPA

7.1 During demolition, the following restrictions will apply:

- Where direct damage by falling masonry is likely, the tree should be protected by exterior grade plywood sheets constructed around the main stem.
- The main body of any mechanical excavator will operate outside the RPA.
- Masonry will be pulled away from trees where possible.
- When breaking masonry, a fine water spray will be used to minimise dust particles.
- Excessive dust particles on trees will be removed each day by spraying with water.

7.2 Hard surfaces should be kept in place for as long as possible during construction works in order to prevent soil compaction in the RPA.

7.3 During surface removal, the following restrictions will apply:

- Only hand operated tools will be used to lift existing surfaces and sub-base. No mechanical excavators are to be used.
- No excavation below the existing sub-base will occur.
- Exposed roots are to be treated as in section 6 above.
- All surface removal within the RPA will be supervised by the arboricultural consultant or the Local Authority Tree Officer.

8. Changes in ground level

8.1 Changes in ground level can be harmful to trees where stripping or filling of soil is carried out in the RPA. It is therefore important that no significant changes in level occur within the RPA of retained trees.

9. Soft landscaping

9.1 No machinery used for landscaping such as rotovators are to operate within the RPAs of retained trees.

9.2 All planting must be carried out carefully, by hand to avoid damage to existing roots. Mulch should be used around the base of trees, where possible, to maintain ground level and to avoid mower and strimmer damage to buttresses and surface roots.

10. Surface design

10.1 It is essential to maintain adequate supplies of water and oxygen for trees through the soil. New impermeable surfacing should not cover more than 20% of the RPA.

10.2 Design and construction specification should take account of further growth.

10.3 Paving slabs and block pavers are available with built in infiltration spaces between the slabs or blocks. They should be laid dry-jointed on a sharp sand foundation to allow air and moisture to penetrate to the rooting area.

10.4 It may be necessary to lay paving and other surfaces on a flexible base to allow movement and to facilitate relaying if distortion becomes excessive due to the activity of tree roots.

10.5 Edgings and associated foundations and haunchings can damage tree roots. This should be avoided within the RPA by either the use of alternative methods of edge support or by not using supports at all.

10.6 Where wheeled traffic is expected in the RPA, it will be necessary to construct the new surface using a cellular confinement system with a permeable surface as detailed in Appendix 5.

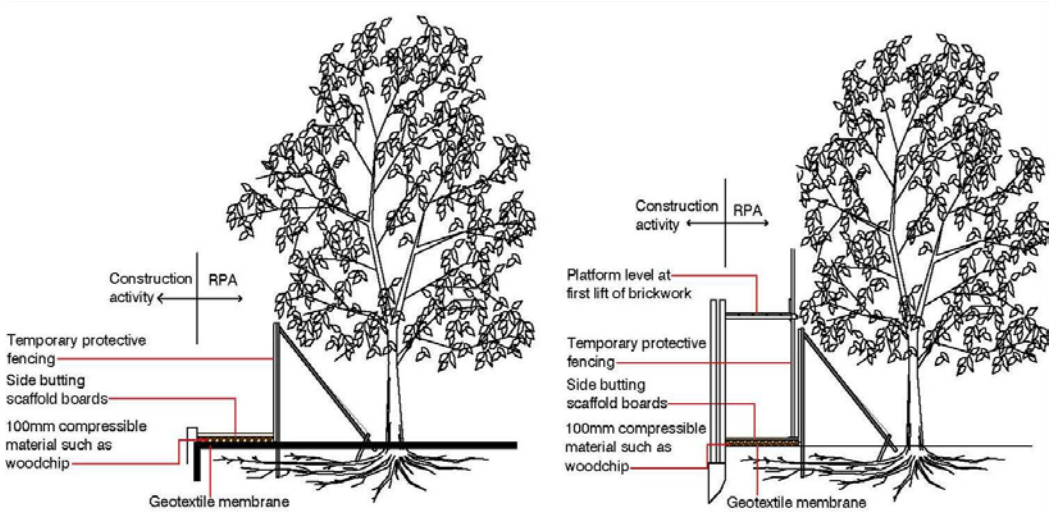
11. Ground protection for wheeled or tracked vehicles

11.1 Occasionally, it may be necessary to drive plant machinery in the RPA. To avoid compaction of the soil during construction, a minimum of 100mm compressible material, followed by temporary interconnected road plates or similar that is capable of sustaining the expected loads should be installed. This system will ensure that the weight is evenly distributed over the affected area.

12. Ground protection for pedestrians or light vehicles

12.1 The primary method of ground protection is the installation of a compressible layer (e.g. woodchip) over a geotextile fabric with side butting scaffold boards. (Fig 3. below)

Fig 3. Ground Protection in RPA



12.2 Ground protection measures whilst working the RPA must be capable of supporting the expected loads and avoid compaction of the soil.

12.3 The boarding will be left in place until the construction works are finished.

12.4 Scaffolding may first be erected with the uprights on spreader boards and the ground protection installed around the uprights.

13. New structures in the RPA

13.1 No concrete strip foundations are to be installed within the RPA of any retained tree. Traditional strip foundations can cause an unacceptable amount of damage during the excavation process where roots are easily torn by mechanical excavators.

13.2 Small, light structures such as sheds and bin stores can be laid directly onto the soil surface without the need for significant excavation. A small amount of excavation may be permissible to provide a level surface, however, no roots over 25mm in diameter should be severed without the advice of an arboriculturist or Local Authority Tree Officer.

13.3 Traditional footings should not be used within the RPA for the construction of non-load bearing walls. It may be possible however, to construct walls in proximity to trees by bridging existing roots with lintels.

13.4 Where foundations are to be laid in the RPA of retained trees, root damage can be minimized by using small diameter piles located to avoid major tree roots. The proposed area for pile installation should be dug by hand to a depth of approximately 750mm in order to ascertain the position of roots present. Beams, slabs and suspended floors should be laid at or above ground level and cantilevered, as necessary, to avoid tree roots.

13.5 Where piling is to be installed in proximity to trees, the smallest practical pile diameter should be used as this reduces the possibility of striking major tree roots, and reduces the size of the rig required to sink the piles. The latter is particularly important where piling within the branch spread is proposed, as mini-rigs reduce the need for access facilitation pruning. Sheathed piles protect the soil and adjacent roots from the potential toxic effects of concrete.

13.6 Backfilling of any excavation should be carried out by hand to avoid direct root damage by excessive compaction and should include, where possible, the replacement of inert granular material mixed with sharp sand (not builder's sand) around retained roots.

13.7 Any pruning should be carried out under the supervision of the arboricultural consultant or the Local Authority Tree Officer to ensure that only branches necessary to facilitate the Proposed Development will be removed and the long-term well-being of retained trees is maintained.

14. Utilities

14.1 The installation of underground utilities within the RPA should not be considered unless it is absolutely necessary. Trenching can cause an unacceptable amount of damage to tree roots.

14.2 The National Joint Utilities Group publication, NJUG10 recommends the following precautions when working in the RPA:

- No excavation should be carried out using machinery.
- When digging by hand, carefully work around roots, retaining as many as possible.
- Do not sever roots over 25mm in diameter without the consent of the arboricultural consultant or Local Authority Tree Officer.
- Any root pruning will be carried out using a sharp tool (eg secateurs or handsaw). Make a clean cut and leave as small a wound as possible.
- Backfill the trench with an inert granular material and topsoil mix. Compact the backfill with care around the retained roots. On non-highway sites backfill only the excavated soil.
- Do not repeatedly move or use heavy mechanical plant except on hard standing.
- Do not store spoil or building material, including chemical and fuels.
- Protect roots with dry sacking if they are to be left exposed overnight when there is a risk of frost. Sacking must be removed before backfilling.

15. Monitoring

15.1 The arboricultural consultant will be responsible for monitoring of all arboricultural works and issuing a certificate of practical completion. In addition, the arboricultural consultant will inspect the protective fencing and monitor any works within exclusion zones.

15.2 A record of site visits will be maintained for inspection on site and copies forwarded to the developer/agent and to the local planning authority.