

Arboricultural Report

Prepared for: Steve James

Site: Glen Cottage, Trout Rise, Loudwater WD3 4JZ

Prepared by: Lee Davies Dip Arb L4 (ABC), TechArborA

Date: 21st November 2019

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Brief

- 1.1 Artemis Tree Services Ltd has been instructed by Steve James by email (Ref. 13520) to undertake a Tree Survey in line with BS5837:2012 and produce an Arboricultural Report to include: Impact Assessment, Tree Protection Plan and Preliminary Method Statement- to identify how nearby trees will be safeguarded during construction of detached outbuilding and associated raised patio.

Report limitations

- 2.1 The tree survey has been undertaken on a preliminary basis only. The survey must not be used in place of a tree risk survey. In cases where I consider further investigation is required, or where trees require immediate attention, this will be noted under the preliminary management recommendations of the survey.
- 2.2 I have not been instructed to identify impacts or risk to the current/proposed property in relation to subsidence. No soil samples have been taken.

Introduction

3.1 Qualifications

- 3.1.1 I am qualified to Level 4 Diploma in Arboriculture, hold the Lantra Awards Professional Tree Inspection Certificate and am a Technician Member of the Arboricultural Association.

3.2 Site Description

- 3.2.1 Glen Cottage is a private residential property in the gated Loudwater Estate, Rickmansworth.

3.3 Proposed development

- 3.3.1 Construction of detached outbuilding and associated raised patio (19/1935/FUL).

3.4 Trees

- 3.4.1 During my site visit I recorded details of seven trees that could be impacted by the proposed development. All seven trees are situated within the garden of Glen Cottage, alongside the left-hand boundary.
- 3.4.2 I have categorized the recorded trees in relation to their quality and value (in a non-fiscal sense) in accordance with Table 1 "Cascade chart for tree quality assessment" within BS 5837:2012, as described below:
- U Trees unsuitable for retention** - Those in such a condition that they cannot be realistically be retained as living trees in the context of the current land use for longer than 10 years
- A Trees of high quality** - With an estimated remaining life expectancy of at least 40+ years
- B Trees of moderate quality** - With an estimated remaining life expectancy of at least 20-40 years
- C Trees of low quality** - with an estimated remaining life expectancy of at least 10-20 years, or young trees with a stem diameter below 150mm
- 3.4.3 A schedule of trees surveyed in accordance with BS5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*' can be found in appendix 1, along with a key for survey data.

Impact assessment

4.1 Impact on trees

- 4.1.1 The proposed development falls within the root protection area (RPA) of T2, T3 and T4. The use of traditional strip footings within the root protection areas (RPAs) is highly likely to result in severance of a large proportion of roots within the RPA of these trees. The impact of this would be, a reduction in water and nutrient uptake, limiting the tree's ability to photosynthesise and leading to further decline and possible loss of the tree. Root severance could also make the tree unstable and increase the likelihood of trees being uprooted in strong winds.
- 4.1.2 The potential negative impacts associated with use of traditional strip footings can be mitigated by using specially engineered pile and beam foundations within the root protection area of T1, T2 and T4. Details of foundation construction within the rooting zone can be found within the attached Method Statement.

4.1.3 Removal of the existing patio area also has the potential to damage roots of these trees and care must be taken (e.g. use of hand tools where appropriate).

4.2 Impact of trees on development

4.2.1 There appears to be sufficient clearance between the crowns of T2, T3 and T4 and the proposed development. Minor pruning of lower branches may be required in the future to maintain clearance from the outbuilding.

4.2.2 I have not been instructed to assess the potential impact of trees on the proposed development in relation to subsidence.

4.3 Tree Preservation Orders (TPO) or Conservation Area Designation

4.3.1 Trees within Glen Cottage are protected by a Tree Preservation Order (TPO 230). Permission must be granted by Three Rivers District Council prior undertaking any works to these trees.

| Report author | Signature | Date |
|---------------|---|--------------------------------|
| Lee Davies |  | 21 st November 2019 |

Appendix 1

Tree Survey Schedule

| Tree ref No. | Species | Ht (m) | Stem Diameter @ 1.5m (mm) RPA circle Radius (m) (RPA m2) | Crown spread (m) | Height of lowest branch (m) & direction of growth (N, S, E, W) | Life stage | Estimated Contribution in years (<10, 10+, 20+, 40+) | General observations P – Physiological condition S – Structural condition | Preliminary management recommendations | Category of retention + Sub-category |
|--------------|--|--------|--|--------------------------------------|--|------------|--|--|--|--------------------------------------|
| T1 | Yew (<i>Taxus baccata</i>) | 3.5 | 400 4.80 72 | N- 0.5 S- 1.5 E- 0.5 W- 0.5 | NA | M | 10 | Topped previously. Minimal growth since last prune. Ivy smothering crown. P- poor S- fair | None required | C1 |
| T2 | Lawson Cypress (<i>Chamaecyparis lawsoniana</i>) | 12 | 350 4.20 55 | N- 2 S- 2 E- 2 W- 2 | 2-N | M | 20+ | Typical example of species. Single trunk separates in co-dominant stems at approx. 7m from ground level. | None required | C1 |
| T3 | False acacia (<i>Robinia psuedoacacia</i>) | 12 | 430 5.10 81 | N- 4 S- 3 E- 2 W- 5 | 3.2-W | M | 20+ | Tree crown-reduced previously, with 4m long regrowth. | None required | C1 |

| | | | | | | | | | | |
|----|---|----|--------------------|--------------------------------|--------|----|-----|---|---------------|----|
| T4 | Beech (<i>Fagus sylvatica</i>) | 17 | 510 6.00 113 | N- 5 S- 2 E- 5 W- 5 | 3-N | M | 40+ | Tree has been crown reduced previously, with approximately 6m long regrowth at top of crown. Thick ivy stems growing up trunk. Dense ivy preventing full visual inspection. | None required | B1 |
| T5 | Beech (<i>Fagus sylvatica</i>) | 16 | 200 2.40 18 | N- 1 S- 1 E- 3 W- 4 | NA | EM | 20+ | Suppressed form situated between larger trees (T4 & T6) | None required | C2 |
| T6 | Beech (<i>Fagus sylvatica</i>) | 16 | 240 3.00 28 | N- 1 S- 1 E- 3 W- 4 | 3.5-SW | EM | 20+ | Suppressed form situated between larger trees (T4 & T6) | None required | C2 |
| T7 | Sycamore (<i>Acer pseudoplatanus</i>) | 16 | 600 7.20 163 | N- 1.5 S- 4 E- 3 W- 4 | 4-W | M | 20+ | Tree has been crown reduced previously, with approximately 6m long regrowth at top of crown. Thick ivy stems growing up trunk. Dense ivy preventing full visual inspection. | None required | B1 |

Survey Key

Stem Diameter (mm)

Stem diameter in millimetres measured at 1.5m above ground level. Where the stem is divided below 1.5m, measurement is taken as directed by BS:5837 Annex C.

Root Protection Distance (RPA)

RPA circle radius is determined from Annex D of BS:5837.

Branch Spread (m)

Radial crown spread in metres, measured for each of the four cardinal points of the compass from the centre of the trunk.

Height of Lowest Branch (m) and direction of growth

Height above ground in metres of the lowest branch and use of the 4 cardinal points of the compass.

Age class

(NP) Newly planted – a tree within 3 years after planting^[SEP]

(Y) Young – a tree within its first one third of life expectancy

(EM) Early Mature – a tree within its second third of life expectancy

(M) Mature – a tree in its final one third of life expectancy^[SEP]

(OM) Over Mature – a tree having reached its maximum life span and is declining in health and size due to old age

(V) Veteran – a tree in the second or mature stage of its life and has important wildlife and habitat features including; hollowing or associated decay fungi, holes, wounds and large dead branches.

(A) Ancient – a tree in the ancient or third and final stage of their life that is of interest biologically, aesthetically or culturally because of its age, size and condition

Physiological Condition

GOOD – a tree in a healthy condition with no significant problems

FAIR – a tree generally in good health with some problems that can be remediated

POOR – a tree in poor health with significant problems that can't be remediated

DEAD – a tree without sufficient live material to sustain life^[SEP]

Structural Condition

An assessment of the structural/safe condition of the tree categorised into:

GOOD – a tree in a safe condition with no significant defects^[SEP]

FAIR – a tree in a safe condition at present but with defects or with significant defects that can be remediated

POOR – a tree with significant defects that can't be remediated

Estimated remaining contribution in years (based on the species and its current condition)

<10 Up to 10 years

10+ 10 years or more

20+ 20 years or more

40+ 40 years or more

Category of retention (Tree quality assessment)

Category U – Tree in poor condition that cannot realistically be retained for longer than 10 years

Category A – Trees of high quality

Category B – Trees of moderate quality

Category C – Trees of low quality

Preliminary Arboricultural Method Statement

Glen Cottage
2019

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Foundation construction within a tree rooting zone

- 1.1 The use of traditional strip footings within the root protection area (RPA) can result in extensive root loss and must be avoided. The insertion of specially engineered structures, such as pile and beam foundations within RPAs may be justified if this enables the retention of a good quality tree that would otherwise be lost (usually categories A or B).
- 1.2 If installing pile and beam foundations within an RPA, a site investigation shall be carried out to determine their optimal location whilst avoiding damage to roots. Investigation must be carried out by means of hand tools or compressed air soil displacement, to a minimum depth of 600mm.
- 1.3 Beams shall be laid at or above ground level, and cantilevered as necessary to avoid any tree roots identified by the site investigation. Where piling is to be installed near to trees, the smallest practical pile diameter shall be used, as this reduces the possibility of striking major tree roots, and reduces the size of the rig required to sink the piles.
- 1.4 If a piling mat is required, this shall conform to the parameters for temporary ground protection detailed above.
- 1.5 Use of the smallest practical piling rig is also important where piling within the branch spread is proposed, as this can reduce the need for access facilitation pruning.
- 1.6 The pile type shall be selected bearing in mind the need to protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, e.g. sleeved bored pile or screw pile.
- 1.7 Where a slab for a minor structure (e.g. shed base) is to be formed within the RPA, it shall bear on existing ground level, and must not exceed an area greater than 20% of the existing unsurfaced ground.
- 1.8 Slabs for larger structures (e.g. dwellings) shall be constructed with a ventilated air space between the underside of the slab and the existing soil surface (to enable gas exchange and venting through the soil surface). In such cases, a specialist irrigation system must also be employed (e.g. roof run-off redirected under the slab).

- 1.9 The design of the foundation shall take account of any effect on the load-bearing properties of underlying soil from the redirected roof run-off. Approval in principle for a foundation that relies on topsoil retention and roof run-off under the slab shall be sought from the building control authority prior to this approach being relied on.

Ground Protection

- 2.1 To prevent compaction of soil within an RPA during construction, temporary ground protection shall be installed that is capable of supporting any pedestrian, plant or traffic movement. The ground protection shall be capable of supporting movement within an RPA without being distorted or causing compaction of underlying soil.
- 2.2 The ground protection shall comprise one of the following:
- a) For pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane.
- b) For pedestrian-operated plant up to a gross weight of 2 ton, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane.

Cable laying/utility instillation within a tree rooting zone

- 3.1 If cable laying/utility installation within tree rooting zones cannot be avoided, the following precautions shall be taken to minimise damage to the root systems.
- Trenchless insertion methods shall be used, with entry and retrieval pits being sited outside the RPA.
 - Apparatus must be kept together in common ducts and inspection chambers sited outside of the RPA.
 - Under no circumstances can machinery be used to excavate open trenches within the RPA.

- 3.2 If trenchless insertion methods are not possible, hand digging within the RPA must be undertaken with great care. The use of this method must be considered only as a last resort. Shallow service runs excavation must be carried out either using hand-held tools being careful not to damage roots, or preferably by using compressed air soil displacement. Clumps of roots less than 25mm in diameter (including fibrous roots) shall be retained in situ without damage.

Throughout the excavation works great care shall also be taken to protect the bark around the roots. Exposed roots shall be wrapped or covered immediately using moist hessian sacking, to prevent desiccation and to protect them from rapid temperature changes. Any wrapping shall be removed prior to backfilling, which must take place as soon as possible.

All roots greater than 25mm diameter shall be preserved and worked around. These roots must not be severed without first consulting the project arboriculturist. If after consultation severance is unavoidable, roots must be cut back using a sharp tool to leave the smallest wound.

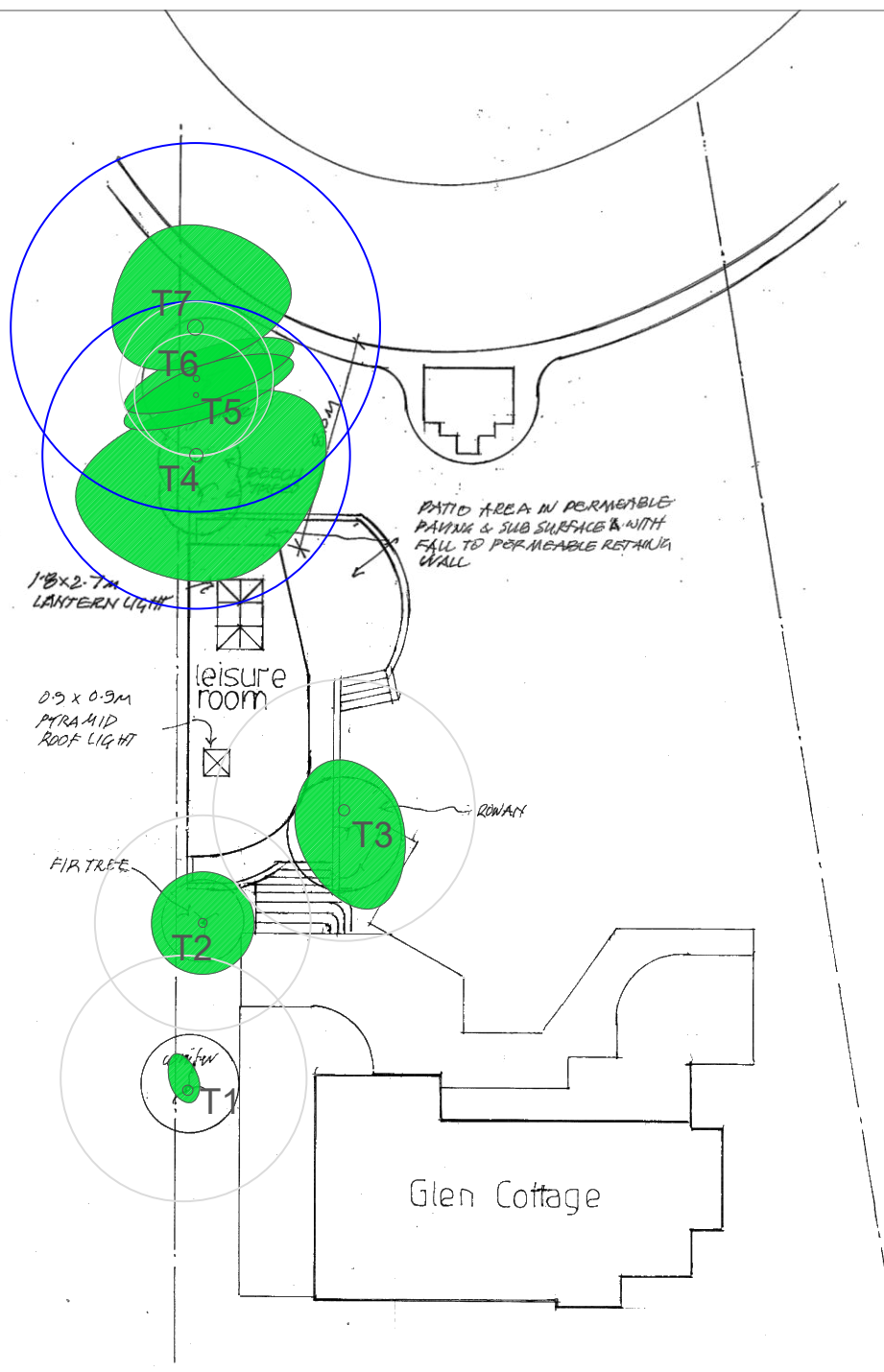
Backfill around roots shall include the placement of an inert granular material mixed 1:1 with topsoil or sharp sand (not builder's sand). This should allow the soil to be compacted for resurfacing without damage to the roots securing a local aerated zone enabling the root to survive in the longer term.

General tree protection measures

- 4.1 The following measures must be observed to prevent unnecessary damage to retained trees:
- Any materials that have the potential to contaminate the soil, e.g. concrete mixing and diesel oil must not be discharged within 10m of the tree stem.
 - The topography of the site must also be considered to avoid materials hazardous to the trees health washings towards its rooting area.
 - Machinery (e.g. diggers) must not be tracked across unprotected soil within the RPA.
 - Building materials must not be stored within the RPA.
 - Fires must not be lit in close proximity to trees.
 - Notice boards, telephone cables or other services should not be attached to any part of retained trees.
 - Ground levels within root protection areas must not be changed.

References

- BS5837:2012 Trees in relation to design, demolition and construction – Recommendations
- NJUG Volume 4 (2007) Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees



- RPA for Cat A* tree
- RPA for Cat B* tree
- RPA for Cat C* tree
- RPA for Cat U* tree
- Tree Canopy

The original of this drawing was produced in colour - a monochrome copy should not be relied upon

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CLIENT: Aspire Homes London Ltd

CONSULTANT: Lee Davies
 Dip. Arb L4 (ABC) TechArborA

SITE: Glen Cottage

TITLE: Tree Protection Plan

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| SCALE AT A3: 1:200 | DATE: 21/11/2019 | DRAWN: LD | CHECKED: |
| PROJECT NO: 13520 | DRAWING NO: ATS GC 01 | REVISION: | |