Frank Parsons
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Arboricultural Report

Client: Mr Ariel Klien

Site: 7 Rosecroft Avenue London NW3 7QA

Survey undertaken: Trees in relation to design, demolition and construction – Recommendations.

Author: Frank Parsons
RFS certificate in Arboriculture
AA Technicians certificate in Arboriculture
(Level 4 Diploma in Arboriculture)

15th January 2022

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1. Background:

This report is in conjunction to the tree survey attached, which has been undertaken to identify any trees within or affected by the proposed development at the site address that should be removed or retained and therefore protected during the proposed development. This report will outline tree categorization methodology with reference to BS 5837:2012.
The proposed site is within a conservation area. The local authority is the Royal Borough of Camden.

2. Clients Brief:

- To undertake a tree survey within the rear gardens of affected properties. Plan supplied by William Tozer associates.

- To provide an Arboricultural report identifying the trees to be retained, removed or worked on within the proposed development and outline and evaluate the constraints posed by the trees retained on site via:

- Root Protection Area (RPA) – Layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of a tree, shown in plan form.

- Construction Exclusion Zone – Area based on the RPA, identified by an arboriculturalist, to be protected during development, including demolition and construction work, by the use of barriers and or ground protection, fit for purpose to ensure the successful long term retention of a tree.

- Tree Protection Plan (TPP) – Scale drawing prepared by an arboriculturalist showing the finalized layout proposals, tree retention and tree landscape protection measures detailed within the arboricultural method statement (AMS), shown in plan form.

- Arboricultural Implications Assessment – Study undertaken by an arboriculturalist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

- Arboricultural method statement (AMS) – Methodology for the implementation of any aspect of development that has the potential to result in loss or damage to a tree. N.B. The AMS is likely to include details of an on site tree protection monitoring regime, construction traffic management plan in relation to trees and a tree pruning schedule.

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3. Scope:

The survey has been conducted in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.

4. Site Observations:

Rosecroft Avenue is located in the leafy area of Hampstead, London and is subject to conservation area orders. Property number 7 is divided into flats with shared use of front driveway and designated areas in the rear garden. The proposed development is in the rear section of the back garden *(see OS plans drawing number A/01/001*) nestled amongst mature trees and vegetation. The garden is west facing. An existing shed and outbuilding occupies the land alongside building materials, the area is overgrown and has been under maintained for some time. Rear garden of No.5 Rosecroft Avenue is to the south of site where many of the mature boundary trees grow. These consist of predominantly Beech and Lime. To the west of site is the rear garden of No.15 Hollycroft Avenue, three mature lime trees grow on the rear boundary of this garden abutting to rear of site. Ground levels drop down by 1m into rear gardens of Hollycroft Avenue, therefore the garden of 7 Rosecroft Avenue is terraced on higher land. A partial brick wall divides rear garden of No.9 to the north of site. There are no trees that would be impacted by the proposed development in this garden. Access to the rear garden of No.7 is via exterior side return for pedestrian use only. A street tree grows outside this side access on Rosecroft Avenue. The soil profile is London clay. The weather at the time of survey was clear with no wind.

5. The Proposed Development:

To replace the existing garden outbuilding with a new pavilion for home office, garden room and storage (*refer to: Garden office – planning statement 26.02.19*). To remove the existing outbuilding, building materials and shrub vegetation up to the proposed site boundary lines and prepare the ground for new single storey garden room structure. All demolition and construction work will be carried out by hand as there is no access for heavy plant or machinery. Materials to be delivered and carried through side access minimising ground compaction and disturbance of vegetation and roots.

6. (i) Tree Survey
*Attached as a separate pdf documents: Reference - **FP/TS/240***

(ii) Survey Map - *attached as a separate pdf document identifying tree numbers and BS Tree Categories: Reference – **TMS 7 Rosecroft Av***

Below: Table 1 – Cascade chart for tree quality assessment

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Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see* **4.5.7**.			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

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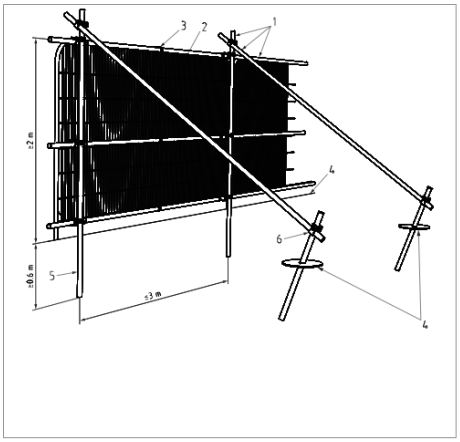
(iii) Tree Constraints Plan:
Attached as a separate pdf drawing: Reference ***TCP 7 Rosecroft Av***

(iv) Tree Protection Plan:
Attached as a separate pdf drawing: Reference ***TPP 7 Rosecroft Av***

7. (i) ***Construction Exclusion zones (CEZ's):***

Barriers and/or ground protection should protect trees that are being retained on site before any materials or light machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers should be erected to create a construction exclusion zone. Erection and retention of a 2m high sturdy secure temporary fence, typically heras style, on a scaffold framework should be positioned along the CEZ calculated along side the RPA's of retained trees.
Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree. Barriers should be maintained to ensure that they remain rigid and complete. Pins can be driven in to the ground to ensure rigidity, or demarcation of barriers with spray will indicate whether or not the barriers have been moved. The mixing and storage of materials is prohibited within the construction exclusion zones, contractors and machinery are also prohibited within CEZ's to mitigate soil compaction. This should be communicated via the project manger at commencement of each stage of the development.

Fig.1 BS 5837:2012:
Example of typical tree protection fencing used to demarcate the calculated construction exclusion zone.



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(ii) ***Recommendations to mitigate or eliminate damage to tree roots within RPA's***

To mitigate severance of roots for foundation construction specialist methods should be used:
Screw piles should be used to support the foundation base of the proposed garden office, with site investigation used to determine their optimal location. Whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 1.5m.
Beams, laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation. Designs for foundations that would minimize adverse impact on trees should include particular attention to existing levels, proposed finished levels and cross-sectional details. In order to arrive at a suitable solution, site-specific and specialist advice regarding foundation design should be sought from the project architect, developer and an engineer.

(iii) ***Appropriate measures to eliminate or mitigate severance of roots for construction of a utility service***:

Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. For this reason, particular care should be taken in the routing and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA.
Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routing should be drawn up in conjunction with the project arboriculturalist. Trenchless insertion methods should be used with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs where applicable.

8. Arboricultural Implications Assessment:

The proposed development impacts the mature trees to the south of site, the majority of which grow in the rear garden of no.5 Rosecroft Avenue. Every precaution must be taken to safe guard the roots of these trees as the trees provide a high landscape contribution to the local vicinity and grow to heights exceeding 10m in some cases. The roots of the trees to the west of site (T7, T8, T9) will not be impacted by the proposed development as the soil level in which they are is 1m lower than soil level in the rear garden of No.7 Rosecroft. The boundary construction of the gardens was terraced to cater for the rise in slope in the surrounding areas.
Tree surgery has been carried out in the past to reduce the south lateral spread of T1, T2, T3, T4 and T6 overhanging rear garden of No.5, the canopies of these trees now appear to be unbalanced as the north lateral spread overhangs rear garden of No.7 by 6m in some cases.

Existing ground surface consists of mainly earth, grass and weeds with a patio pathway leading to a shed with a concrete base at the rear of site. Stripping of soil must be kept to a minimum so as not to desiccate the rooting areas of nearby trees.

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Foundation bases should work around the roots of existing trees. Concrete slabs would be unacceptable in this instance and screw piles should be adopted to support the proposed garden office. Hand dig trial pits will identify locations for the piles as the majority of the proposed development will be within the root protection areas of trees to the south of site.

The exterior side access provides extraction and delivery of materials by means of foot traffic only. There is no feasible access for heavy machinery and plant, therefore minimising ground compaction on this project, which will ensure the existing vitality of tree roots within the site boundaries.

9. Site Observations

Photo1: Illustrates existing garden shed taken from rear garden aspect looking west. Outbuilding in rear garden of No.9 is to the right of photo.

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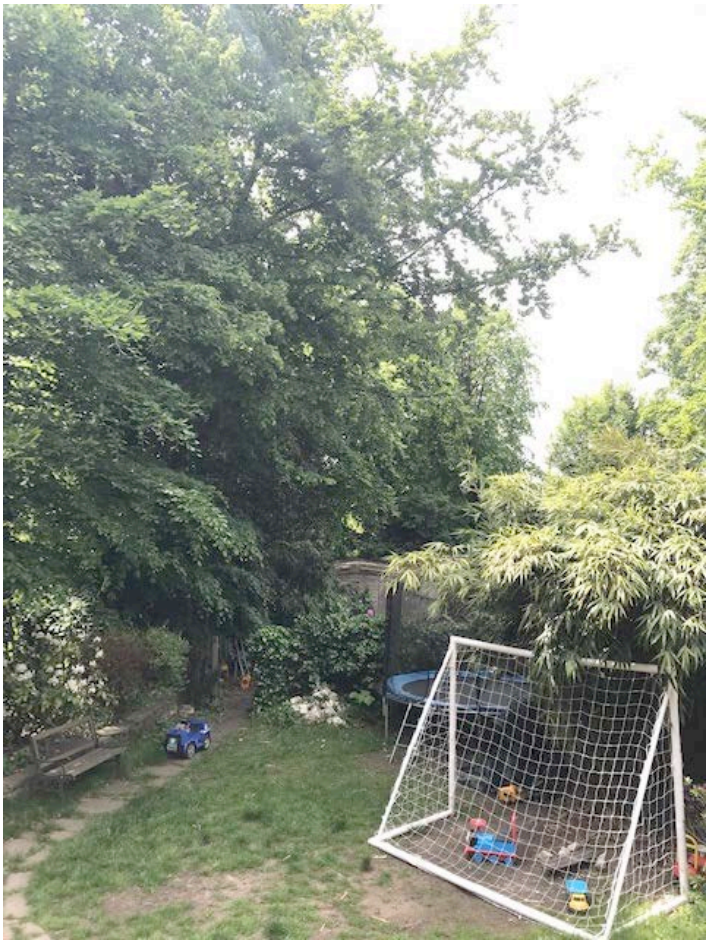

Photo 2: Access pathway through rear garden into bottom section via left hand side. Taken looking west. Mature trees dominate south boundary with overhanging canopies from T2, T3 & T4. Vegetation in right of photo is classified as bamboo, which does not require BS5837 protection.

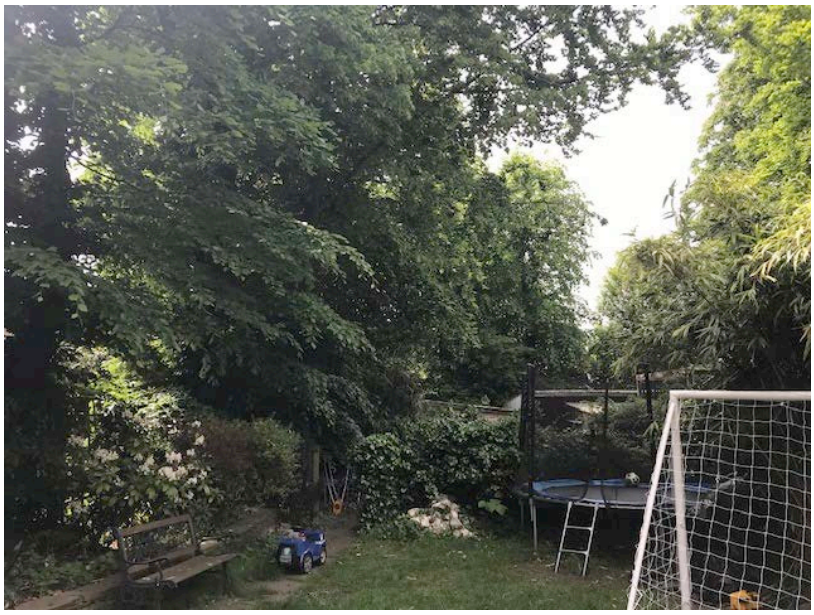

Photo 3: Taken from same position as photo 2 in landscape aspect to illustrate extent of vegetation visible from rear of property no.7.

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Photo 4: Taken facing east towards number 7 rear elevation and illustrates side access pathway to be used for extraction and delivery of materials (No access for plant or heavy machinery)

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Photo 5: T5 - Holly, is incorporated within plans. Photo illustrates the tree growing under T4. The tree has a stipulation for removal, as it will cause future heavy shade within this area of the garden if incorporated within the proposed development.

Photo 6: Three lime trees growing in the rear garden of 15 Hollycroft Avenue. The trees appear to be maintained on a regular basis. The ground level is approximately 1m lower than that of rear garden of no.7 Rosecroft therefore roots of these trees would not be impacted via compaction or excavation during the proposed development.

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Photo 7: Depicts side access from street level leading down to rear garden. The street tree in the left of photo is a mature London Plane. On larger scale developments the stem of these trees are protected throughout the duration of works however for such a small scale project with no heavy machinery access nor concrete mixer delivery I would consider tree stem hoarding unnecessary.

10. Arboricultural Method Statement:

To ensure the health and existing vitality of the trees that grow in and around the proposed site, the AMS should be used in conjunction with the tree protection plan attached to this report. (*TPP 7 Rosecroft Av*) See below trees that require protection, pruning or removal prior to demolition and construction.

T1 - Beech: RPA impacted by footfall access into site. Ground protection to be installed along desire line into site. No pruning works required.

T2 – Lime: RPA impacted by proposed development. No stripping of soil or excavation allowed. To mitigate root severance or desiccation install screw piles at strategic locations with regards to rooting activity in site. Prune back north lateral spread by 2m to improve light and clearance.
T3 – Beech: RPA impacted by proposed development. No stripping of soil or excavation allowed.

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To mitigate root severance or desiccation install screw piles at strategic locations with regards to rooting activity in site. Prune back north lateral spread by 4m to improve light and clearance.

G1 – Beech: RPA's impacted by proposed development. No stripping of soil or excavation allowed. To mitigate root severance or desiccation install screw piles at strategic locations with regards to rooting activity in site. No pruning work required

T4 – Beech: 50% of RPA impacted by proposed development. No stripping of soil or excavation allowed. To mitigate root severance or desiccation install screw piles or concrete pads at strategic locations with regards to rooting activity in site. No pruning work required

T5 – Holly: Fell to ground level and remove stump.

T6 – Beech: 40% of RPA impacted by proposed development. No stripping of soil or excavation allowed. To mitigate root severance or desiccation install screw piles at strategic locations with regards to rooting activity in site. Prune back north lateral spread by 2m to improve light and clearance.

T7 – Lime: No work required. Soil and planting level is a minimum of 1m below that of the proposed development separated by double brick course retaining boundary wall. Roots will not extend into site.

T8 – Lime: As for T7

T9 – Lime: As for T7

Installation of services and utility runs:
Mature trees grow along the south boundary of site with roots calculated to be present at least 2m if not 4m into the rear garden proposed site. Any subterranean services or utilities to be installed along the north assumed boundary line with number 9 Rosecroft Avenue.

Construction exclusion zones:
The boundary lines of properties will act as natural construction exclusion zones. Fencing may be appropriate depending on the building contractor. Site monitoring will take place fortnightly by the project arboriculturalist.

Site access:
Side return in between number 9 and number 7 Rosecroft Avenue provides access for extraction and delivery of materials. Access is 800mm wide. This leads down steps into lower level of garden where it would be advisable to install ground protection matting to mitigate damage to communal areas of the rear garden. A communal driveway is present however a number of residential vehicles will require access and therefore should be kept free from construction traffic.

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11. CTMP – construction traffic management plan with regards to the Street Tree adjacent to site access.

Neither crane operations nor HIAB vehicle unloading should be carried out underneath the canopy or adjacent to the stem of the London Plane tree, which grows outside the side access to number 7 Rosecroft Avenue. Should Camden require protection of this street tree, a 3m high timber hoarding should be installed around the tree stem to mitigate mechanical damage throughout the proposed development.

12. Conclusion

The proposed garden office would be an improvement on the existing rear garden area as it stands. The project could nestle amongst the mature trees to the south and create a useful area of enjoyable space in an area of the garden, which will rarely see sunshine.
The trees that grow along the south boundary are the main constraint within this report. Numerous screw piles will be adopted to support floor bases in this instance. The project engineer will confirm quantity and depth of the piles. I am be confident that the roots of protected trees would not be disturbed and drainage and nutrient availability would be relatively consistent in relation to the proposed design. Open courtyards, external areas and the fern garden will allow opening in the built structure for rainwater and organic matter to flow freely. The base of the garden office should float a few centimetres off ground level to allow for drainage and airflow to the roots beneath soil surface.
An option that may enhance the garden office design is a green roof. For the residents at number 7 and number 9, this would soften the appearance of the proposed structure in its surroundings.

All tree pruning should be carried out in accordance with British Standards 3998:2010. The Tree Protection Plan annotates measures to protect trees during the proposed development as per BS 5837:2012. Should the client wish, I will oversee the tree protection prior to works commencing, during and after the proposed development for continuity should the client gain planning.
This report is to be submitted in conjunction with ***Tree Survey*** *– FP_TS_240* ***Site Plans*** *– TMS 7 Rosecroft Av, TCP 7 Rosecroft Av, and TPP 7 Rosecroft Av.*

13. References:

- BS 5837:2012 – Trees in relation to design, demolition and construction – Recommendations
- Original scale site survey supplied by William Tozer associates.