Land at 6 Templewood Avenue, Hampstead, London NW3.

Tree Survey and Tree Protection.

1.0 Brief and Objectives

1.1 To inspect and report on six trees within the garden of number 6 Templewood Avenue and two trees in the adjoining garden. The eight trees are within the Redington Frognal Conservation Area in the Borough of Camden.

1.2 To identify the principal trees and carry out a visual assessment of their structural condition and to give brief recommendations for management work. The trees are recorded on the enclosed plan No. SBA/JS/111 and within the Tree Schedule. Photographs of the main trees have been appended to help with identification.

1.3 Having regard to the proposed building works and in particular the extension to the basement of the main house, to give recommendations on the retention of the most important trees and to calculate Root Protection Areas (RPA) in accordance with the Recommendations of BS 5837:2005 Trees in Relation to Construction.

2.0 Scope / Limitations

2.1 The locations of all the larger trees in the garden are shown on drawing No. SBA/JS/111. The Cedar tree T1, is the most significant tree in the garden and is of particular interest. There are a number of very minor trees and shrubs in the garden that are not shown on the drawing as they have no amenity value beyond the confine of the private garden.

2.2 The assessment and recommendations made in this report are based on a visual assessment made at ground level only and no invasive or checking of internal structure has been undertaken.

2.3 Additional defects that are not visible from the ground level inspection may be present in the trees stem and crown structure. The report does not guarantee the safety of any trees on site and Sacha Barnes Associates do not take responsibility for subsequent or future damage or injury caused by trees on the site. No guarantee can be given to the structural integrity of trees when placed under extremes of weather, especially high winds.

2.4 Any comments on trees are based on observations made at the time of the site survey carried out on the 10th of November 2009. The trees were inspected in calm, early winter conditions with good light. This is a good time for inspecting the overall structure of the trees and for any evidence of fungal fruiting.

2.5 The location, and depth of services across the site are not known at the time of this survey.

3.0 Tree Protection within the Redington Frognal Conservation Area.

3.1 The trees surveyed are within the Redington Frognal Conservation Area and are therefore regarded as protected trees. Particular attention has been given to their amenity value and the contribution they make to the character of the area.

4.0 Assessment of Amenity Value

4.1 When considering trees for retention the British Standard 5837: 2005 requires an assessment to be made of their amenity value. These are categorised as A of High Quality, B of Moderate Quality and C of Poor Quality. (Refer to attached Table 1 – Cascade chart for tree quality assessment). Trees that are assessed as Poor Quality are either in poor condition or make little visual contribution. They may be considered for felling. The trees recommended for felling are shown coloured red on the Tree Survey plan. Of the eight trees included in this report only the Cedar tree T1 has been given the A category and is of the highest amenity value. The Oak tree T3 is also of high amenity value but it is well away from the construction area and therefore not at risk.

4.2 The Tree Schedule within this report recommends certain management works with a priority rating. The submission of this report should be regarded as notification of the landowner's intention to carry out these works.

5.0 Root Protection Areas and Protection of Trees within the Building Construction Area.

5.1 The Root Protection Area (RPA) has been measured for the Cedar tree T1, the Sycamore tree T5 and the Silver Birch tree T8. The remaining trees are either far enough away from the construction area or are recommended for removal. Based upon the recommendations of BS 5837:2005, the Root Protection Area (RPA) is calculated at a certain radius from the base of each tree. This is the minimum area in m^2 that should be left undisturbed (without special measures of mitigation). The RPA is calculated as an area equivalent to a circle with a radius 12 times the stem diameter for single stem trees, when measured at 1.5 metres above ground level. In the case of multi stemmed trees the RPA is calculated as an area equivalent to a circle with a radius 10 times the stem diameter of the collective Tree Root Flare (TRF), measured just above the base of the tree. The British Standard allows some discretion over these measurements where certain site factors may obstruct or influence the spread of tree roots, such as the restriction caused by deep foundations and retaining walls or paved surfaces with deep construction..

6.0 Tree Schedule Description

6.1 Please refer to each of the paragraphs on the Tree Schedule. The Tag Number identifies each tree and refers to the number and location on the Tree Survey Drawing (Note: Trees have not been physically tagged or numbered on site). The Species gives the common and botanical name of each tree. The height of the trees has been measured as the height from ground level. The diameter is then measured as the stem diameter at 1.5m above ground level, or as the diameter of the Tree Root Flare at near ground level in the case of multi stemmed trees. The tree spread is shown on plan as the full extent of the tree canopy. The Age Class is normally given as either young, early mature, mature or over mature. In the case of

over mature trees The Life Expectancy is given as the estimated timescale before the tree seriously declines and will have to be felled. The Physiological and Structural Condition is a record of certain factors that have been identified for attention, it is not a comprehensive diagnosis. The Management recommendation lists the main and most urgent management works required to address any structural condition that could cause a hazard or problem on the site. This includes recommendations for more frequent monitoring. The BS Classification gives an amenity rating in accordance with BS 5837: 2005. Please note that at the time of the survey it was not possible to gain access to the adjoining property, therefore the stem and crown measurements for trees T3 and T4 are given as estimates only.

7.0 Recommendations for Tree Protection

7.1 The following notes are intended as a guide to the measures of protection required to ensure the proper protection of trees. They should be applied to all future construction and building operations.

a) Trees shall be protected in accordance with BS 5837:2005 Trees in Relation to Construction. On completion of any tree surgery works and before any development works are started on site (including all ground works and scraping of top soil), protective fencing (Heras or scaffolding work as per attached example) shall be erected on the alignment shown on plan. In most cases this will be just outside the measured Root Protection Area unless there are other mitigating factors such as existing buildings and hard surfaces that will restrict root development or involve no excavation (Please refer to paragraphs e) f) g) h) and i) below).. The protective fencing shall be erected and inspected by the supervising agent before any materials or machinery is brought onto site and before any ground works are commenced. Once erected the protective fencing shall not be removed or altered until the construction works are completed.

b) No materials, machinery, site huts, fuel oils or chemicals shall be stored within the Root Protection Areas.

c) No fires shall be lit within 10 metres of the crown spread of any protected tree. This distance will need to be greater if there is any likelihood of strong winds. The contractor shall seek advice from the Borough of Camden Environmental Services before lighting any fire.

d) Notices shall be fixed to the protective fencing and displayed in the contractors working area and site huts making it clear to all site operatives and visitors that the trees are protected.

e) With the exception of some ingress to the RPA for tree T1 (See notes in paragraphs f) g) and h) below) no excavations for foundations, construction or services shall be made within the remaining part of the Root Protection Area. Where excavation is essential in order to comply with Planning Permission, great care shall be taken to protect tree roots. Particular care must be taken not to sever exposed roots greater than 50mm diameter. Should any roots of this size be found within the construction area these must be left intact and advice sought immediately from an Arboricultural expert. Any minor roots found within the permitted construction area that have to be cut shall be cut clean with a sharp knife or secateurs.

f) The reinforcement works will require some deep excavation within the Tree Root Protection Area but the plan clearly demonstrates that less that 10% of the primary root area of the tree could be affected by the excavation and construction. This degree of possible disturbance will not be critical and shall not be detrimental to the health and stability of the tree provided care is taken to protect tree roots during construction. Detailed designs for the proposed basement construction have yet to be prepared and it is our recommendation that the construction for the basement does not intrude within the Root Protection Area of Tree T1. A 2 metre wide working margin has been left around the building for a working access and for the reinforcement of the existing foundations. The tree is quite close to the house and we recommend that it be inspected annually by an Arboricultural expert for any signs of deterioration. The tree would also benefit from having a section of the stone slab patio removed and the ground reinstated with a fully permeable soil layer to encourage new root development.

g) It is understood that the basement shall be built in accordance with the recommendations of the Supplementary Planning Document for Subterranean Development published by The Royal Borough of Kensington and Chelsea. The basement shall also be designed with a sustainable drainage system that shall ensure adequate moisture continues to reach the tree roots. Care shall be taken with the backfilling of soil to avoid over compaction within the RPA. Should there be any delay in backfilling the excavated area during dry or frozen conditions the face of the exposed soil shall be covered with wet hessian and kept damp to prevent the soil and roots from drying out.

h) Should temporary vehicular access be required to the rear garden to facilitate building works, it shall be no wider than 3 metres and routed close to the western boundary along the side of Templewood Gardens. The access track surface shall be achieved with a ‘no dig’ construction using a ‘Cellweb’ construction specification. (See appended construction detail). This will require the removal of the Purple Plum tree T2 but the tree is badly decayed and needs to be felled in the interest of safety. On completion of the building works the temporary track surface shall be removed and the ground fully restored, taking care to break up the compacted surface layer of top soil.

i) It is recommended that the sides of the basement construction adjacent to the Cedar tree T1, should be clad with a ‘slip’ membrane. This will help to deflect growing roots away from the new structure.

j) It is important that in future the ground below the tree remains porous, allowing air and moisture to the tree roots and therefore we recommend that a permeable paving be used. The area below the tree shall be left as a garden with only a shallow cultivation for planting and lawn. If it is essential for pedestrian access to be taken within the RPA, protective fencing during the construction period the ground between the fencing and the building shall be protected by scaffolding boards, a single thickness of boards will be sufficient for pedestrian loads. The ground beneath the boarding should be left undisturbed and is to be protected with a geo-textile fabric. If necessary, sand should be laid on the fabric to level the ground. The boarding should be left in place until the building works are completed.

k) **Services -** The excavation and laying of new services shall be carried out in accordance with the NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees. No new services that require excavation shall be permitted within the fenced Root Protection Area. The location of all existing services above and below ground and the location of all proposed services shall be shown on the Architects detailed drawings. New services shall be routed outside of the tree Root Protection Area to avoid any disturbance to tree roots.

8.0 Tree Pruning / Management Operation Recommendations (Refer to Tree Schedule).

General – Care shall be taken to maintain the shape and natural profile of the tree canopy, and all climbing operations are to be undertaken by a qualified, experienced and insured Arboricultural contractor. All works are to be carried out to BS: 3998 (1990) 'Recommendations for Tree Work' and in compliance with current industry best practice.

8.1 It is recommended that prior to the start of construction work on site all essential pruning and management operations are carried out. The following is a general description of the terminology used to describe the operations.

a) **Crown Clean –** To remove dead, dying or diseased wood, stumps of broken branches and Ivy. For the benefit of wildlife the Ivy need only be removed where it is spreading beyond the main fork into the crown of the tree. Any significant cavities or areas of decay then discovered shall be reported immediately to the supervising agent.

b) **Crown Raise –** Remove complete limbs and / or small branches as appropriate to increase the clearance between ground level and the lower branches to a given height. Correct heights shall be given for each tree according to the clearance required for access and the character of the tree.

c) **Crown Thin –** To remove all dead, dying or diseased wood and a proportion of secondary and small live branch growth throughout the crown, to an even density of foliage around a well spaced and balanced branch structure. The main objective of this exercise is to reduce the weight and burden upon main stems and the risk of splitting occurring at the main forking points. Normally the crown shall be thinned by no more than 30% of the overall crown density.

d) **Crown Balancing / Reduction –** To balance the spread of the crown to achieve a reasonable symmetry to the overall shape, height and spread. Much of this may be achieved by the operations listed above. Where trees have previously been pollarded, care must be taken to cut back cleanly to the old pollard points. The Arboricultural contractor shall check any cavities and areas of decay and shall use professional judgement to make sure that the old wood is capable of supporting the new growth.