March 2015
CBA10274 v1

OpticRealm Ltd

ARBORICULTURAL DEVELOPMENT STATEMENT

Site:
5-7 Lancaster Grove, London NW3

Russell House, Unit 20, Chalcroft Business Park,
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The Complete Arboricultural Consultancy

CBA10274

ARBORICULTURAL DEVELOPMENT STATEMENT

Arboricultural Implications Assessment and Method Statement

guided by recommendations within BS5837:2012

Client:	OpticRealm Ltd
Site:	5-7 Lancaster Grove, London NW3
Arboricultural Consultant:	James Fuller *FdSc.Arb, BTEC Nat.Dip. Arb, TechArbor.A*
Date:	March 2015

SUMMARY

The proposal is for the demolition of the existing Clifford Pugh House and the construction of a new 15-unit apartment block at the site of Clifford Pugh House, 5-7 Lancaster Grove, London, NW3.

This Arboricultural Statement will demonstrate the protection measures for the retained trees and should be read in association with the Tree Protection Plan CBA10274.02, which identifies the tree retention measures. It follows the initial tree survey, implications assessment and on-going discussions to minimise the impact upon the existing tree stock.

The emphasis of the report is predominantly that of preservation and tree protection. It identifies methodologies to provide protection for trees, to ensure their healthy and safe retention during and post development, as guided by BS5837:2012 and current best practice.

A total of 4 (four) individual trees (Trees 1, 8, 9 and 10) and 1 (one) group (Group 1) of trees can be retained within and adjacent to the development as detailed within this report.

There are 9 (nine) individual trees (Trees 2, 3, 5, 6, 7, 11, 12, 13 and 14) and 1 (one) group of trees (Group 2) that will be lost to facilitate the proposed development, and allow reasonable and usable garden space to be developed.

There is 1 (one) tree (Tree 4) that shall be removed for sound arboricultural management regardless of any development proposals.

CBA Trees believes that the trees highlighted for retention within this report can be retained without undue stress on their long-term health.

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PART 1
ARBORICULTURAL IMPLICATIONS ASSESSMENT

1.0 INTRODUCTION

1.1 There is a development proposal for the site of Clifford Pugh House, 5-7 Lancaster Grove, London, NW3. The site is located on the northern side of Lancaster Grove opposite the junction with Crossfield Road.

1.2 The proposal is for the demolition of the existing Clifford Pugh House and the construction of a 15 unit (7 x 1 bed units, 7 x 2 bed units and 1 x 3 bed unit) residential development providing a mix of apartment sizes, which shall all comply with the London Plan and LTH Standards.

The proposed building sits on the same footprint as the existing building, apart from at the rear, which will be extended from its current line to align with the adjoining building to its West.

1.3 Document disclosure provided:

- Topographical Site Survey provided by John Pardey Architects
- Structural information provided by John Pardey Architects
- Lower Ground Floor Plan (Ref 1409_1999)
- Landscape Plan (Ref 358-1000;1003)

1.4 The client provided the original site plans and locations of the trees, and these have been the basis for the production of subsequent plans. Whilst CBA Trees has had a limited input in defining the contents of the development plan, it broadly conforms to the requirements of BS5837:2012 *"Trees in Relation to Design, Demolition and Construction – Recommendations"* and current best practice advice.

1.5 Our advice has been sought on the principles of the development in relation to the potential impact on the existing tree stock, to inform and to facilitate the development layout that is acceptable in arboricultural terms.

2.0 CLIENT'S BRIEF

2.1 In line with our written quotation and verbal instructions, information has been compiled in accordance with BS5837:2012 and current best practice advice.

- To undertake a Tree Survey (schedule including Root Protection Areas appended at CB1).

- To produce an AutoCAD Tree Survey Plan that relies on the accuracy of the topographical survey provided by the client. (Plan CBA10274.01 appended at CB2).

- Based on the above and further on-going discussions, to provide an Arboricultural Statement detailing the methodologies for the retention of the tree stock where feasible, in relation to the proposed development layout including a Tree Protection Plan (Plan CBA10274.02 appended at CB3).

2.2 The advice provided is in support of the current planning application and has been formulated without discussion with the main construction contractors who at this stage have not been appointed. Once the main contractors are appointed, amendments to this Method Statement may be required for construction purposes. All amendments will be assessed by the retained arboricultural consultant and approved in writing by London Borough of Camden.

3.0 DESCRIPTION OF THE SITE

3.1 The site is currently occupied with a late 19th century villa block. The site drops in level from that of Lancaster Grove and is then relatively flat in nature. The existing building occupies the majority of the site. There is some external hard standing around the edge of the building footprint. The front of the site is lined with an existing privet hedge and a moderate quality offsite Sycamore. There is an overgrown rear garden with a low quality tree stock located around its periphery. The better quality trees are located offsite but still on the boundary of the site.

3.2 **Photograph 1:** A view of the existing building from Lancaster Grove

4.0 THE TREE STOCK

4.1 A tree survey was undertaken by CBA Trees on 11th August 2014 that identified 14 (fourteen) individual trees, 2 (two) groups of trees and 1 (one) hedge. The Tree Survey Schedule is appended at CB1 and Tree Survey Plan (CBA10274.01) is appended at CB2.

4.2 ***Tree Categorisation Method***

Category U = Trees in such a condition that any value would be lost within 10 years, or should be removed for reasons of sound arboricultural management.

There was 1 (one) 'U' grade tree on the site at the time of surveying (Tree 4).

Note: BS5837:2012 states -
"Category U trees are 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."

Category A = Trees of high quality and value: in such a condition as to make a substantial contribution, (40 years or more is recommended). There were no individual 'A' grade trees on or adjacent to the site at the time of surveying.

Category B = Trees of moderate quality and value, capable of making a significant contribution for in excess of 20 years. There were 4 (four) individual 'B' grade trees and 1 (one) 'B' grade group of trees adjacent to the site at the time of surveying (Trees 1, 8, 9 and 10 and Group 1).

Category C = Trees of low quality and value which might remain for a minimum of 10 years or young trees with stems of less than 150mm diameter. There were 9 (nine) individual 'C' grade trees, 1 (one) 'C' grade group of trees and 1 (one) 'C' grade hedge on the site at the time of surveying (Trees 2, 3, 5, 6, 7, 11, 12, 13 and 14, Group 2 and Hedge 1).

Note:
Trees under these categories are trees that should be a material consideration in the development process; the subcategories are intended to reflect arboricultural, landscape and cultural values respectively.

4.3 For more details of the existing tree stock, refer to the Tree Survey Schedule (appended at CB1).

5.0 TREE PRESERVATION ORDER/CONSERVATION AREA

5.1 Following consultation with London Borough of Camden, CBA Trees has been made aware that the trees within the grounds of the site are not covered by any Tree Preservation Orders; however the site is located within the Belsize Conservation Area. If it is intended to carry out works to trees on site prior to the granting of Full Planning Consent and Discharge of Planning Conditions or, in excess of those shown within this development statement, it will be necessary to provide written notification to London Borough of Camden six weeks prior to the commencement of works. No work should take place on offsite trees without the consent of the tree owner.

6.0 PROPOSED TREE RETENTION AND TREE LOSS

6.1 In accordance with the recommendations contained within BS5837:2012, an experienced arboriculturist has assessed the requirements for tree protection and the Root Protection Area (RPA). The implications of the proposed development are detailed below, along with any mitigating measures to ensure the retention of these trees.

6.2 As part of the assessment, dimensions have been scaled from the proposed design layout drawing (140814 1409 Lancaster Grove) prepared and modified, to include the relevant Tree Survey data and the information as shown on Plan CBA10274.02, appended at CB3.

6.3 Tree 4 was given a 'U' grade and is advised for removal for reasons of sound arboricultural management, regardless of any development proposals.

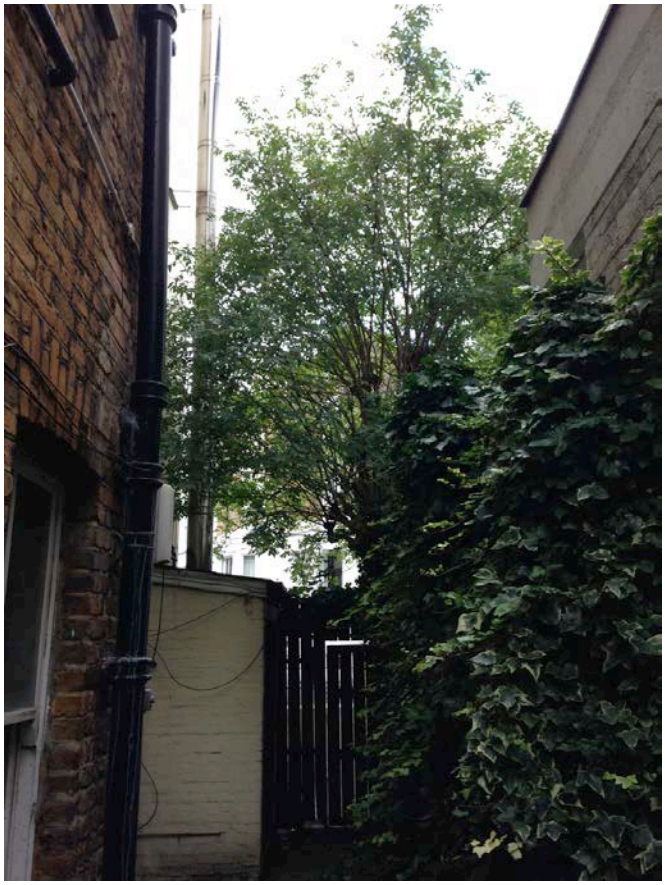
6.4 There are 9 (nine) individual trees (Trees 2, 3, 5, 6, 7, 11, 12, 13 and 14) and 1 (one) group of trees (Group 2) that will be lost to facilitate the development, and allow reasonable and usable garden space. These 9 (nine) trees and 1 (one) group of trees are all low quality trees with a limited value.

6.5 **Table 1:** Breakdown of tree loss

Tree Number	Species	BS5837:2012 Category	Reason for Loss
2	Common Elder	C1	• Grows tightly next to boundary wall
3	Common Sycamore	C1+2	• Under footprint of proposed building footprint
5	Common Sycamore	C1+2	• Proposed retaining wall encroaches into RPA • Proposed stair case leads up under canopy • Remove to allow for reasonable garden space
6	Hybrid Black Poplar	C1+2	• Suppressed and stunted • Has limited value • Would detract from the overall appearance of the proposed development • Remove to allow for reasonable garden space
7	Common Sycamore	C1+2	• Suppressed by larger trees • Remove to allow for reasonable garden space
11	Common Sycamore	C1+2	• Suppressed and stunted • Has limited value • Would detract from the overall appearance of the proposed development • Remove to allow for reasonable garden space

Tree Number	Species	BS5837:2012 Category	Reason for Loss
12	Common Sycamore	C1+2	• Suppressed and stunted • Has limited value • Would detract from the overall appearance of the proposed development • Remove to allow for reasonable garden space
13	Common Sycamore	C1+2	• Suppressed and stunted • Has limited value • Would detract from the overall appearance of the proposed development • Remove to allow for reasonable garden space
14	Common Sycamore	C1+2	• Has limited value • Would detract from the overall appearance of the proposed development • Remove to allow for reasonable garden space
H1	Privet	C2	• Removed to allow for site access
Grp 2	Privet Elder Bramble	C2	• Has limited value • Would detract from the overall appearance of the proposed development • Remove to allow for reasonable garden space

6.6 **Photograph 2:** A view of Tree 2 from the North



6.7 **Photograph 3:** A view of Trees 3-7 from the West

6.8 **Photograph 4:** A view of Trees 11-14 from the South

7.0 SUMMARY OF ARBORICULTURAL IMPLICATIONS

7.1 The following summary of implications relates to all the retained trees and groups of trees, which require mitigation measures to allow for Demolition/Construction operations.

Tree No.	Species	BS 5837:2012 Cat	Potential cause of harm	Implication	Mitigation
1	Common Sycamore	B1	• Demolition of existing building in close proximity to canopy • Construction of proposed building in close proximity to canopy • Removal and reinstatement of existing hard surface within theoretical RPA	• Offsite tree • Retained • Damage to roots, trunk and branches causing bark wounds, which could be susceptible to the ingress of pathogens • Compaction within RPA causing an anaerobic growing condition for the roots	• Minor crown reduction on North side as detailed within the Tree Works Schedule (TWS) appended at CB4. • Tree Protection Barrier for duration of the demolition and construction works as detailed in Section 8 of this report, to be located as specified on the Tree Protection Plan. • Existing hard standing within RPA retained for duration of demolition and construction phase to allow for access and act as ground protection. • See note below

PART 1
ARBORICULTURAL IMPLICATIONS ASSESSMENT

Tree No.	*Species*	*BS 5837:2012 Cat*	*Potential cause of harm*	*Implication*	*Mitigation*
8 9 10 Grp 1	Deodar Cedar Sycamore Sycamore Common Lime	B1+2 Interim B1+2 Interim B1+2 Interim B2 Interim	• Offsite trees • Overhanging branches and RPAs extend to proposed rear garden area. • Proposed decking and patio encroaches into RPAs. • Proposed air source heat pump located in close proximity to retained off site trees.	• Offsite trees • Retained • Damage to roots, trunk and branches causing bark wounds, which could be susceptible to the ingress of pathogens • Compaction within RPA causing an anaerobic growing condition for the roots.	• Tree Protection Barrier for duration of the demolition and construction works as detailed in Section 8 of this report, to be located as specified on the Tree Protection Plan. • Proposed timber deck and reclaimed light grey granite setts encroach marginally into the RPAs of Trees 9 and 10. Encroachment is not considered to be significant, minor excavations within RPAs to be carried out by hand under the supervision of the retained arboricultural consultant. • Proposed air source heat pump located in corner of the site outside the RPAs of retained trees, would not require and significant excavation and can sit wholly above ground barring minor excavations for the pipework conduit. • Group 1 to be pruned as detailed within the TWS appended at CB4. • See note 2 below

Notes:

1. Tree 1 is located offsite. There is an existing retaining wall located along the edge of the site, which is thought to have had an implication on the spread of roots into the site. The existing ramp shall be removed and replaced as part of the development. The proposed levels are approximately 200mm lower towards the extremity of the RPA. This is not considered to be a significant encroachment into the RPA due to the presence of the retaining wall and the location of the encroachment. The proposed lowering of levels shall be carried out under the supervision of the retained arboricultural consultant in accordance with Section 10 of this report.

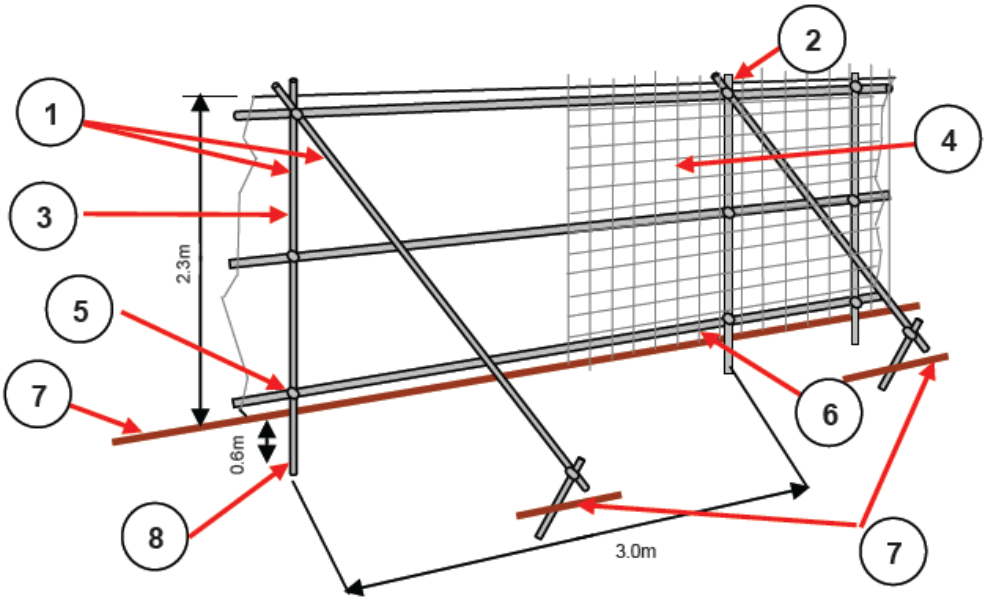
2. Group 1 is located offsite. There is an existing brick boundary wall between the site and the offsite trees, which is considered to have acted as a root barrier to the roots for Group 1. The amended RPAs for this group have been shown on the Tree Protection Plan CBA10274.02.

8.0 TREE PROTECTION MEASURES

8.1 Standard Protective Barrier

Trees 1, 8, 9 and 10 and Group 1 are adjacent to areas of significant construction activity or areas of minor or low risk demolition and will be protected by installing the following protective Barrier as indicated on Tree Protection Plan CBA10274.02. The barrier is to comprise of a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Onto this, weldmesh panels should be securely fixed with wire or scaffold clamps.

Figure 1: Protective Barrier



1. Standard scaffold poles
2. Uprights to be driven into the ground
3. Panels secured to uprights with wire ties and where necessary standard scaffold clamps
4. Weldmesh wired to the uprights and horizontals
5. Standard clamps
6. Wire twisted and secured on inside face of barrier to avoid easy dismantling
7. Ground level
8. Approximately 0.6m driven into the ground

Example of protective barrier:

Once the barrier is in place it must remain *in-situ* throughout the following list:

- Contractor occupancy
- Plant and Materials delivery
- Construction works
- Installation of porous surfacing
- Utility installation
- Completion of development
- Landscaping

The area within the tree protection barriers shall be known as the Construction Exclusion Zone (CEZ) and will be regarded as **sacrosanct;** the tree protective barriers shall not be taken down or relocated at any time without the written approval of London Borough of Camden. An example of a CEZ notice is appended at CB5.

9.0 DEMOLITION

9.1 Demolition of existing building will be carried out so as to prevent damage to existing retained trees.

9.2 Demolition of the structures in close proximity to the retained trees must be done with due care and attention, in order to adequately respect overhanging canopies of all retained trees. To this end, the following rules will apply:-

- Site personnel are to undergo an induction session prior to being allowed to work on site. The induction will introduce the contractors to the requirements of the Protection Method Statement. A copy of the Method Statement will be made available as a point of reference in respect of tree protection requirements. In addition, a copy of the Tree Protection Plan will be provided or pinned up in the site hut. During the induction, trees, which are to be retained and protected will be highlighted to the demolition personnel and they will be physically shown which trees are to be protected on site. In this way, it is hoped that unnecessary damage, by root disturbance and collision of machinery booms and operating arms with tree crowns can be avoided.

- All walls, foundations and basements are to be pulled in on themselves towards the centre of the site and away from retained trees. This will be done in a direction away from the tree protective barriers and all large machinery to be operated at least 2.5-3.0 metres outside the tree protective fence line from where it is erected for the site preparation works.

- Any machinery used for this purpose is to stand and operate over existing hard surfaces wherever possible, but always outside the CEZ as defined by the protective barrier.

- Lightweight structures will be demolished and removed by hand. Work will be carried out from existing hard surface. If the structure is not served by existing hard surface ground protection will be laid in accordance with Plan CBA10274.02, appended at CB3.

- Where dust is created and deposited on adjacent retained trees, provision will be made to wash down the crowns of retained trees weekly to prevent excessive dust affecting the photosynthetic capacity of retained trees.

10.0 REMOVAL OF BUILT FORM AND HARD SURFACES IN CLOSE PROXIMITY TO RETAINED TREES

10.1 Removal of existing hard standing within the CEZ of retained trees, must be undertaken by hand (where feasible and in line with Health and Safety polices) to avoid any surface root damage, and shall be supervised on-site by the retained arboricultural consultant.

10.2 Any removal of hard surfacing, built form or other excavations in close proximity to trees will be undertaken by working only from the existing hard surface or protected ground area. The required work should then be completed with hand operated tools or appropriate machinery, but under the supervision of an arboriculturist. Any machinery or equipment to be used will need to be lightweight and run on additional ground protection, or working from the existing hard standing only.

10.3 If the area of the zone of protection around the retained trees is to be left following the removal of the existing hard surface, and before a new hard surface is laid, or the area receives soft landscaping treatment, then ground/tree protection MUST be correctly re-established immediately the hard surface removal work has been completed.

10.4 If there is a delay, for whatever reason, and the area that was previously protected by hard surfacing is left exposed awaiting a new surface, a temporary surface must be implemented, and/or Hessian sacking must be placed over any exposed roots.

11.0 AVOIDING DAMAGE TO STEMS AND BRANCHES

11.1 Care shall be taken when planning site operations, to ensure that wide or tall loads, or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact could result in serious damage to them, and might make their safe retention impossible. Consequently, any transit or traverse of plant in close proximity to trees, will be conducted under the supervision of a banksman, in order to ensure adequate clearance from trees is maintained at all times.

12.0 SITING OF TEMPORARY OFFICES, TOILETS AND MATERIAL STORAGE COMPOUNDS

12.1 It is anticipated that all storage materials and deliveries shall make use of the existing access and hard surfaces within the site confines, in order to avoid unnecessary damage to tree roots.

12.2 The locations shall be agreed in writing with London Borough of Camden prior to the commencement of works on site, and will remain in only those agreed locations throughout the construction phases. If an alternative location is required, this must be agreed in writing with London Borough of Camden. This will also include the delivery; storage and movement of all essential facilities, as well as aspects such as temporary contractor vehicle parking and site location of chemical mixing (e.g.

concrete). All such locations will be outside of the RPAs, and avoid areas where 'run off' of chemicals may flow into RPAs.

12.3 ***Site Huts***

All site huts (if required) that are to be situated on ground that is not existing hard surfacing, shall have appropriate footings or be situated on a temporary surface, which will aid in reducing the potential for compaction of the ground, where they are in close proximity to the existing tree protective barrier line. Site huts can be used as part of the protective barrier boundary, and in some cases, can be beneficial where installation does not conflict with the aerial parts of the tree.

12.4 ***Material Storage***

This shall be accommodated outside of the CEZ, particularly to avoid harmful spillages of fuel, or phytotoxic substances that may damage the health of retained trees.

13.0 GENERAL CONSIDERATIONS WITHIN AND OUTSIDE THE CONSTRUCTION EXCLUSION ZONE

13.1 Inside the CEZ formed by the protective barrier and ground protection measures, the following prohibitions shall apply:

- No construction activity will occur within the CEZ unless otherwise stated in this report, or agreed in writing with London Borough of Camden prior to the specific activity taking place.

13.2 In addition to the above, further precautions are necessary adjacent to trees outside the CEZ:

- Materials, which will contaminate the soil e.g. concrete mixing, diesel oil and vehicle washings, shall not be discharged within 10 metres of the tree stem, branches and foliage. This should take into consideration the topography of the site, to avoid liquids such as concrete washings running down hill towards retained trees.

- Fires shall not be lit in a position where their flames can extend to within 10 metres of foliage, branches or trunk. This will depend on the size of the fire and the wind direction.

- Notice boards, telephone cables or other services shall not be attached to any part of the tree. (See appendix CB5 Common Causes of Damage During Construction Works)

14.0 SOFT LANDSCAPING WORKS

14.1 The proposed landscaping scheme by Studioengleback has been overlaid onto the Tree Protection Plan. The proposed landscaping scheme provides the mitigation for the loss of existing trees on site.

15.0 SITE MONITORING AND SUPERVISION

15.1 It is recommended that on-going arboricultural site monitoring takes place for the duration of the proposed development, to be carried out by a qualified and experienced arboriculturist at pre-determined and agreed time intervals, and governed by the type, timing, location and intensity of site works. London Borough of Camden to Condition site monitoring if required.

15.2 If Conditioned, it is recommended that it take the form of regular inspections (to be agreed, but at least one visit per month during the construction phase of the development is advised, together with additional visits to supervise works with the CEZ of retained trees), the aim of the visits is to maintain on-going liaison with all personnel involved in the site development, London Borough of Camden and its Tree Officer.

15.3 Any defects requiring rectification shall be notified to the Contractor/Site Manager and the client.

15.4 In addition to the above, it is also recommended that a site logbook for tree protection measures is kept to record all stages of the development from the erection of the protective barrier, right through to the completion of the project. This could then made available to the arboricultural consultant and London Borough of Camden if required, to show evidence of continuous site monitoring.

Example pro-forma

Date	Activity	Checked	Comments/ damage noted	By whom	Signed	Action taken
	Erection of protective barrier					
	Inspection of protective barrier					

15.5 The London Borough of Camden Tree Officer (or appropriate representative) will have agreed access to the site, and will report on any problem areas directly to the developer's retained arboriculturist, who will then visit the site and make recommendations to the developer on how best to rectify the situation and ensure the implementation.

16.0 REPORT DAMAGE TO TREES AND TREE PROTECTION BARRIER

16.1 Should any damage be caused to trees noted for retention, either by the above works or as the result of any other action, the damage should be reported to the site supervisor immediately. The site supervisor shall report up the chain of responsibility to the retained consultant arboriculturist, or in the absence of such an appointment, to an appropriately qualified arboriculturist, to enable remedial measures to be implemented as necessary and as agreed with London Borough of Camden.

16.2 Should protective barriers become damaged so as to impair their function in protecting trees, all work shall cease in the vicinity of the damage, until the barriers have been returned to standard.

17.0 REMOVAL OF PROTECTIVE BARRIER

17.1 When the development phase is complete, all drainage and service runs are in place, all site machinery has been removed and any landscaping for the principal area of the site has been implemented, the protective barrier will be dismantled.

17.2 This fence dismantling must be undertaken with great care, and will need to be supervised to avoid heavy machinery being used within the RPAs. Hoarding, scaffolding and other barrier materials will need to be removed from site immediately.

18.0 CONCLUSIONS

18.1 The proposal for the demolition of the existing Clifford Pugh House and the construction of a new 15-unit apartment block at the site of Clifford Pugh House, 5-7 Lancaster Grove, London, NW3 have been assessed broadly in accordance with BS5837:2012 *"Trees in Relation to Design, Demolition and Construction – Recommendations"*.

18.2 It is our opinion that the trees identified for retention can be afforded due respect and provided adequate protection, ensuring their safe and healthy retention during the development process.

18.3 A total of 4 (four) individual trees (Trees 1, 8, 9 and 10) and 1 (one) group (Group 1) of trees can be retained within the development as detailed within this report. There are 9 (nine) individual trees (Trees 2, 3, 5, 6, 7, 11, 12, 13 and 14) and 1 (one) group of trees (Group 2) that will be lost to facilitate the development, and allow reasonable and usable garden space. There is 1 (one) tree (Tree 4) that shall be removed for sound arboricultural management regardless of any development proposals.

18.4 It is our opinion that the loss of the 9 (nine) trees and 1 (one) group of trees will not have a detrimental effect on the local visual amenity or significantly alter the visual treed character of the local area, if a landscaping scheme that includes quality trees, selected to suit the site conditions and the space available, is implemented.

18.5 Provided the recommendations included within this report are strictly adhered to, CBA Trees believes the trees highlighted for retention within this report can be retained without undue stress on their long-term health.

19.0 CONTACT LIST

19.1 It is suggested that points of contact and lines of communication are established prior to commencement of the works on site including:-

- Arboricultural Consultant
- Project Architect
- Highways Engineer
- Structural Engineer
- Drainage Engineer
- Landscape Architects
- London Borough of Camden's Tree Officer
- London Borough of Camden's Planning Case Officer
- Site Supervisor and Foreman

19.2 It is advised that the site supervisor establishes their own listing of contact details at the pre-start site meeting, and displays this in their office for general use as necessary.

20.0 BIBLIOGRAPHY

- British Standard 5837:2012 –
  "Trees in Relation to Design, Demolition and Construction - Recommendations"
- British Standard 3998:2010 –
  "Recommendations for Tree Work"
- National Joint Utilities Group Publication Volume 4 –
  "Guidelines for the planning, installation and maintenance of utility services in proximity to trees"
- Wildlife and Countryside Act 1981
- Town and Country Planning Acts

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CB1

The Professional Arboricultural Consultancy

TREE SURVEY NOTES

This Tree Survey has been undertaken within the recommendations of British Standards 5837:2012 and current arboricultural best practice.

- Each tree has been numbered and, where instructed, for future identification on site, has been tagged using small durable metal or plastic tags.
- Due to variations of existing ground levels through the site, height dimensions are estimated and are given in metres. Accurate heights, measured with the aid of optical instruments can be provided where instructed.
- Trunk/stem diameters are measured in mm at 1.5 metres above ground level, using a standard measuring tape as defined by British Standards, unless otherwise stated.
- Estimated branch spread is taken in metres from the centre of the trunk, at the four cardinal points of a compass, to achieve an accurate representation of the crown shape which will be recorded on the tree survey plan.
- An assessment of a tree's age classification is made in terms of its maturity within the site's landscape and defined as:

  Y = young trees
  SM = semi-mature trees
  EM = early mature trees
  M = mature trees
  OM = over-mature trees

- An assessment of a tree's physiological condition is defined as:

  Good = fully functioning biological system showing average vitality i.e. normal bud growth, leaf size, crown density and wound closure
  Fair = fully functioning biological system showing below average vitality i.e. reduced bud growth, smaller leaf size, lower crown density and reduced wound closure
  Poor = a biological system with limited functionality showing significantly below average vitality i.e. limited bud growth, small and chlorotic leaves, low crown density and limited wound closure
  Dead = dead

- An assessment of a tree's structural condition is defined as:

  Good = no significant structural defects
  Fair = structural defects which could be alleviated through remedial tree surgery or management practices
  Poor = structural defects which cannot be alleviated through tree surgery or management practices
  Dead = dead

- An assessment of a tree's future life expectancy is defined as: **<10, 10+, 20+ or 40+ years.**

Categorisation of Trees

The category for each tree is assessed using the recommendations of BS5837:2012. The assessment has not considered any site-specific development proposals, but will have considered any changes on or off-site which may have an effect on the conditions surrounding the surveyed trees.

The trees have been classified into one of the following categories (and one or more sub-categories [this will however not increase the value of the tree]) and are indicated on the associated drawings by colours as indicated.

Category U				Identification colour on plan
Trees 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			**DARK RED**
Category A	1 – Mainly arboricultural values	2 – Mainly landscape values	3 – Mainly cultural values	Identification colour on plan
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)	**LIGHT GREEN**
Category B	1 – Mainly arboricultural values	2 – Mainly landscape values	3 – Mainly cultural values	Identification colour on plan
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 down-graded 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 value or other cultural value	**MID BLUE**
Category C	1 – Mainly arboricultural values	2 – Mainly landscape values	3 – Mainly cultural values	Identification colour on plan
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	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	**GREY**

Clients are advised that Tree Surveys are a basic data collection exercise and record of tree condition at the time of survey. This will identify any visible signs of ill-health or major defects, advising a further detailed investigation where appropriate. This will most often take the form of a request for either "*full ground level inspection"* or "*climbing inspection required".* There may also be a further reference to the need for "*decay detection equipment"* to aid diagnosis. A tree survey does not include a comprehensive schedule or specification of remedial tree works, but may contain a guide to the work which might be undertaken by a prudent tree owner, purely for reasons of health and safety.

A Tree Survey should not be confused with a Tree Inspection or Arboricultural Implication Assessment, which are totally separate exercises.

CBA Trees	**BS5837:2012 TREE SURVEY REPORT**			
	Client:	OpticRealm Ltd	Site:	5-7 Lancaster Grove, London NW3
	Date:	11 August 2014	Consultant:	James Fuller FdSc.Arb, BTEC Nat.Dip.Arb, TechArbor.A
	Tagged:	No	Weather:	Warm and cloudy

Notes:-

1. It may be advised that some trees should have the ivy removed to enable a re-survey to be carried out. This would also alleviate the tree from becoming suppressed; carrying additional weight that increases the chance of windthrow due to a larger dense crown area; and only receiving restricted light. Unless otherwise stated, in order to prevent regrowth, it is only necessary to remove a 300mm section of ivy and clear around the base.
2. It may be advised that it was only possible to estimate the diameter of some trees because of ivy smothering, dense vegetation, or trees located off-site with no access.
3. The estimated remaining contribution in years, and the tree grading category have been calculated for the current situation and may alter where further investigation works are advised.
4. Some trees or groups may have been given an interim grade. The reason for the interim grading is addressed in the timescales given as this may have a bearing on health and safety and/or any development proposals.
5. Tree Groups have been assessed with estimated and representative data.
6. This is not a Tree Works Schedule. Any preliminary management recommendations are listed in the interests of health and safety and should be carried out by a prudent tree owner.
7. Any management recommendations are suggested for reasons of health and safety only, regardless of development proposals at this stage. However, the defects requiring remedial tree surgery are by their very nature potential wildlife habitats, including protected species which needs consideration prior to any tree surgery works commencing.
8. a) At this stage the Root Protection Area (RPA) information is for your guidance and ongoing discussion purposes only as it assumes that all but the 'U' grade trees will be retained, which may not be the case.
   b) For all single stem trees with a stem diameter greater than 1250mm, and multi-stem trees with a stem diameter greater than 1500mm, the calculated RPA has been capped at 707m2 in accordance with Section 4.6.1 of BS5837.2012.

TREE PRESERVATION ORDER/CONSERVATION AREA:

The Local Authority has confirmed that none of the trees on site are protected by a Tree Preservation Order.
The Local Authority has confirmed that the site is located within London Borough of Camden Conservation Area

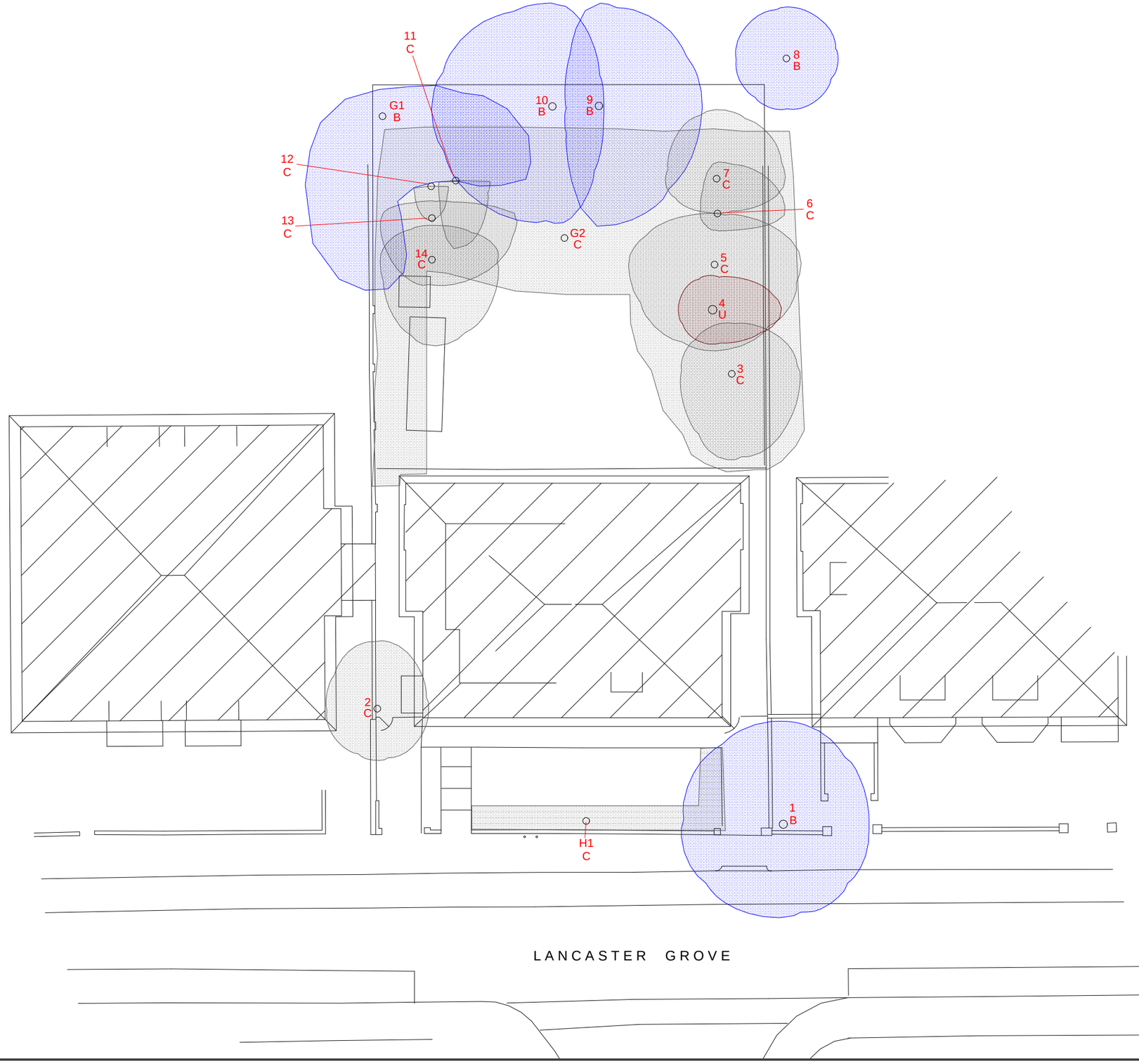
Tree No	Species	H't (m)	Single/ Multi-Stemmed (S or MS)	Stem Diam (mm)	Root Protection Area (m^2)	Root Protection Distance (m)	Branch Spread (m)	H't of Crown AGL (m)	Life Stage	Physio-logical Condition	Structural Condition and General Observations	Preliminary Management Recommendations	Est. Rem. Contrib. (Yrs)	Cat
1	Sycamore *Acer pseudoplatanus*	10	MS	280 380	101	5.7	N 6 E 5 S 5.5 W 6	N 2 E 2 S 2 W 2	Semi-mature	Good	Structural Condition - Fair Offsite tree Boundary line tree Roots and trunk causing direct damage to boundary walls and hard standing Bifurcated at 1.2m above ground level North side stem bifurcated again at 2m above ground level	None required at time of survey	20+	B1
2	Common or Black Elder *Sambucas nigra*	7	MS	200 200 100	41	3.6	N 4 E 3 S 3 W 3	N 3 E 3 S 2 W 2	Semi-mature	Good	Structural Condition - Fair Boundary line tree Ivy on trunk and in crown Previously crown reduced Grows tightly next to boundary wall Branches touching building to East	None required at time of survey	10+	C1
3	Sycamore *Acer pseudoplatanus*	9	S	180	15	2.2	N 3 E 4 S 5 W 3	N 3 E 3 S 3 W 3	Young	Good	Structural Condition - Fair Developing tree Crown shape distorted due to group pressure Trunk kinks at 3m above ground level	None required at time of survey	20+	C1+2
4	Hybrid Black Poplar *Populus x canadensis*	14	S	500	113	6.0	N 2 E 4 S 2 W 2	N 3 E 3 S 3 W 3	Semi-mature	Poor	Structural Condition - Poor Boundary line tree In decline Apical dieback Crown density reduced Poor quality tree	Advise removal	<10	U

Tree No	Species	H't (m)	Single/ Multi-Stemmed (S or MS)	Stem Diam (mm)	Root Protection Area (m^2)	Root Protection Distance (m)	Branch Spread (m)	H't of Crown AGL (m)	Life Stage	Physio-logical Condition	Structural Condition and General Observations	Preliminary Management Recommendations	Est. Rem. Contrib. (Yrs)	Cat
5	Sycamore *Acer pseudoplatanus*	10	S	250	28	3.0	N 3 E 5 S 5 W 5	N 3 E 2 S 2 W 3	Semi-mature	Fair	Structural Condition - Fair Boundary line tree Crown shape distorted due to group pressure Minor deadwood in crown Ivy on trunk Estimated data Unable to verify health and safety due to dense understorey	Clear around base and resurvey within 1 month	20+	C1+2 Interim
6	Hybrid Black Poplar *Populus x canadensis*	10	S	250	28	3.0	N 3 E 4 S 1 W 1	N 4 E 4 S 4 W 4	Semi-mature	Fair	Structural Condition - Fair Boundary line tree Trunk and crown shape distorted Ivy on trunk Suppresed Estimated data Unable to verify health and safety due to dense understorey	Clear around base and resurvey within 1 month	10+	C1+2 Interim
7	Sycamore *Acer pseudoplatanus*	10	S	250	28	3.0	N 4 E 4 S 2 W 3	N 2 E 2 S 2 W 2	Semi-mature	Fair	Structural Condition - Fair Boundary line tree Crown shape distorted due to group pressure Ivy on trunk and in crown Estimated data Unable to verify health and safety due to dense understorey	Clear around base and resurvey within 1 month	20+	C1+2 Interim
8	Deodar Cedar *Cedrus deodara*	12	S	200	18	2.4	N 3 E 3 S 3 W 3	N 2 E 2 S 2 W 2	Semi-mature	Good	Structural Condition - Good Offsite tree Unable to verify health and safety due to no access Estimated data	Gain access and resurvey within 1 month	40+	B1+2 Interim

Tree No	Species	H't (m)	Single/ Multi-Stemmed (S or MS)	Stem Diam (mm)	Root Protection Area (m^2)	Root Protection Distance (m)	Branch Spread (m)	H't of Crown AGL (m)	Life Stage	Physio-logical Condition	Structural Condition and General Observations	Preliminary Management Recommendations	Est. Rem. Contrib. (Yrs)	Cat
9	Sycamore *Acer pseudoplatanus*	14	S	450	92	5.4	N 6 E 6 S 7 W 2	N 5 E 4 S 5 W 5	Semi-mature	Good	Structural Condition - Good Boundary line tree Unable to verify health and safety due to no access Crown shape distorted due to group pressure Estimated data Bifurcated at 4m above ground level Grows with T10	Gain access and resurvey within 1 month	40+	B1+2 Interim
10	Sycamore *Acer pseudoplatanus*	14	S	450	92	5.4	N 6 E 3 S 7 W 7	N 4 E 5 S 4 W 5	Semi-mature	Good	Structural Condition - Good Boundary line tree Unable to verify health and safety due to no access Crown shape distorted due to group pressure Estimated data Grows with T9	Gain access and resurvey within 1 month	40+	B1+2 Interim
11	Sycamore *Acer pseudoplatanus*	8	S	140	9	1.7	N 0 E 2 S 4 W 1	N 0 E 2 S 2 W 2	Young	Fair	Structural Condition - Fair Developing tree Suppressed and stunted Poor quality tree	None required at time of survey	10+	C1+2
12	Sycamore *Acer pseudoplatanus*	8	S	140	9	1.7	N 0 E 1 S 2 W 1	N 0 E 4 S 4 W 4	Young	Fair	Structural Condition - Fair Developing tree Suppressed and stunted Ivy on trunk Self set tree	None required at time of survey	10+	C1+2
13	Sycamore *Acer pseudoplatanus*	10	S	210	20	2.5	N 1 E 5 S 4 W 3	N 3 E 3 S 3 W 3	Semi-mature	Fair	Structural Condition - Fair Ivy on trunk and in crown Crown shape distorted due to group pressure Poor quality tree Of limited value	None required at time of survey	10+	C1+2

Tree No	Species	H't (m)	Single/ Multi-Stemmed (S or MS)	Stem Diam (mm)	Root Protection Area (m^2)	Root Protection Distance (m)	Branch Spread (m)	H't of Crown AGL (m)	Life Stage	Physio-logical Condition	Structural Condition and General Observations	Preliminary Management Recommendations	Est. Rem. Contrib. (Yrs)	Cat
14	Sycamore *Acer pseudoplatanus*	11	S	165	12	2.0	N 2 E 4 S 5 W 3	N 2 E 1.5 S 2 W 3	Semi-mature	Good	Structural Condition - Fair Developing tree Trunk and crown shape distorted Crown shape distorted due to group pressure Self set tree	None required at time of survey	20+	C1+2
H1	Privet	2	S	100	5	1.2	N - E - S - W -	N - E - S - W -	Semi-mature	Good	Structural Condition - Good Boundary edge hedge Fully managed and maintained	None required at time of survey	10+	C2
G1	Common Lime	14	S	400	72	4.8	N - E - S - W -	N - E - S - W -	Semi-mature	Good	Structural Condition - Fair Crown shapes distorted due to group pressure Minor deadwood in crowns Previously pollarded Provides good visual separation Unable to verify health and safety due to no access Partly off site group Boundary line group	Gain access and resurvey within 1 month	40+	B2 Interim
G2	Privet Elder Bramble	4	S	150	10	1.8	N - E - S - W -	N - E - S - W -	Semi-mature	Fair	Structural Condition - Fair Boundary edge group Scrubby group Poor quality group	None required at time of survey	10+	C2


CB2



Note: Root Protection Area and Shading Arc not shown on this plan

Crown Spread | Root Protection Area | Shading Arc

Category 'A' | Category 'B' | Category 'C' | Category 'U'

0 — 15m

CBA Trees
Russell House,
Unit 20, Chalcroft Business Park
Burnetts Lane, West End
Southampton SO30 2PA
Tel: 023 8098 6229

10274
5-7 Lancaster Grove, London NW3
Tree Survey Plan

SCALE :	DATE :
1 : 250 @ A3	24/10/2014

MAP FILENAME :
CBA10274.01A TSP

N


CB3

KEY

OFF SITE TREES TO BE RETAINED AND PROTECTED IN ACCORDANCE WITH BS5837:2012

TREES TO BE REMOVED TO FACILITATE PROPOSED BUILDING & GARDEN LAYOUT SUBJECT TO LOCAL AUTHORITY'S APPROVAL

'U' GRADE TREE (TREE 4) TO BE REMOVED REGARDLESS OF ANY PROPOSED DESIGN LAYOUTS SUBJECT TO LOCAL AUTHORITY'S APPROVAL

LOCATION OF TREE PROTECTION BARRIER DURING CONSTRUCTION OF REAR GARDEN

LOCATION OF PROPOSED DECKING & GRANITE SETTS REQUIRING MINOR EXCAVATIONS WITHIN RPA - TO BE CARRIED OUT BY HAND UNDER SUPERVISION OF RETAINED ARBORICULTURAL CONSULTANT

LOCATION OF TREE PROTECTION BARRIER DURING DEMOLITION & CONSTRUCTION WORKS

EXISTING CONCRETE SECTIONS TO BE RETAINED FOR DURATION OF DEMOLITION & CONSTRUCTION PHASES. ONLY REMOVED ONCE COMPLETE, BY HAND UNDER SUPERVISION OF RETAINED ARBORICULTURAL CONSULTANT.

Proposed air source heat pump

11 C
G1 B
10 B
9 B
8 B
12 C
13 C
7 C
6 C
G2 C
14 C
5 C
4 U
3 C
2 C
1 B
H1 C

5m 10m

KEY

ROOT PROTECTION AREA (RPA)
CROWN SPREAD
TREE NUMBER
CATEGORY

JOB TITLE
5-7 Lancaster Grove, London NW3

DRAWING TITLE
Tree Protection Plan

CBA DRAWING No.
CBA10274.02 TPP

BASE PLAN DRAWING No.
150206 Lancaster Grove_Site & 358_Lancaster Grove_Landscape_141020

SCALE 1:250 @ A3

DRAWN AM

DATE March 2015

CBA Trees.
Russell House, Unit 20 Chalcroft Business Park, Burnetts Lane, West End, Southampton, SO30 2PA
Tel: 02380 986229


CB4

CBA Trees	**TREE WORKS SCHEDULE**			
	Client:	Optic Realm Ltd via John Pardey Architects	**Site:**	Clifford Pugh House, 5-7 Lancaster Grove, London NW3
	Date:	March 2015	**Consultant:**	James Fuller FdSc.Arb, BTEC Nat.Dip.Arb, TechArbor.A

Tree No.	Species	Recommended Works
1	Common Sycamore	• Crown reduce on North side by 2m • Crown lift on North side to 3m above ground level
2	Common Elder	• Remove
3	Common Sycamore	• Remove
4	Hybrid Black Poplar	• Remove
5	Common Sycamore	• Remove
6	Hybrid Black Poplar	• Remove
7	Common Sycamore	• Remove
8	Deodar Cedar	• N/A
9	Common Sycamore	• N/A
10	Common Sycamore	• N/A
11	Common Sycamore	• Remove
12	Common Sycamore	• Remove
13	Common Sycamore	• Remove
14	Common Sycamore	• Remove
Grp 1	Common Lime	• Crown lift to 4m above ground level on South and east side
Grp 2	Privet Elder Bramble	• Remove
H1	Privet	• Remove

- All tree works are advised to be carried out between July and September or November and February. Tree works should also avoid the season for nesting birds.
- All tree works should be carried out in accordance with current best practice guidelines and BS3998:2010 – Tree Work Recommendations.
- We recommend the use of an Arboricultural Association Approved Contractor or an ISA Certified Arborist/Tree Worker suitably insured and experienced to carry out the tree works.


CB5

TREES AT_____:

SUMMARY OF

TREE PROTECTION MEASURES

Introduction

This leaflet shall be issued to all site personnel as part of their induction briefing.

It describes in summary form the precautions that site personnel shall at all times follow, to ensure that the existing trees on the site come to no harm.

The precautions described are neither arbitrary nor reducible and must be adhered to in full.

These precautions are necessary because unprotected trees are very vulnerable to damage during demolition and construction works.

Furthermore, many of the trees on the site are under **LEGAL PROTECTION** and damaging them can result in heavy fines.

Two common misconceptions about trees:

MYTH: Trees have deep taproots and so shallow excavations will not harm the tree.
FACT: 90% of all tree's roots are found in the top 600mm of soil; all excavations near to trees are likely to cause root damage which can kill the tree.
MYTH: Trees will quickly heal over any bark wound, with no ill effect.
FACT: Bark wounds take years to heal and larger ones never do; missing bark can lead to disease and even the death of the tree.

Tree Protection

All trees adjacent to unsupervised work areas have been protected by fencing.

This fencing must be respected at all times and no attempts shall be made to damage, bypass or ignore it.

In areas designated for supervised working, no works shall be undertaken without the supervisor being present or without him/her issuing a "carry on" chit.

Prohibitions Adjacent to Trees

Inside the exclusion area of the tree protection, the following prohibitions shall apply.

- **No** digging or scraping
- **No** storage of plant or materials
- **No** vehicular access
- **No** fire lighting
- **No** handling, discharge or spillage or any chemical substance
- **No** water-logging

In addition to the above, further precautions shall be taken near to trees.

- A 10m separation distance shall be observed between trees and any substance injurious to their health, including fuels, oil, bitumen, cement (including washings) builders' sand, concrete mixing and other chemicals.

- No fire shall be lit such that flames come within 5m of any foliage; this shall be taken to mean a fire separation distance to the leaved of 20m.

Avoiding Damage to Stem and Branches

Care shall be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights, can operate without coming into contact with trees.

Consequently, any transit or traverse of plant in proximity to trees shall be conducted under the supervision of a spotter to ensure that adequate clearance is at all times maintained.

In some circumstances, it may be impossible to achieve this, necessitating the pruning of the tree.

If this is necessary, a specialist team shall be called in following referral to the project Arboriculturist.

No tree pruning shall be undertaken by demolition or construction personnel.

Asking for Help

If you see any damage to a tree or its protective fencing, or if you need a tree pruning for plant clearance, contact **CBA Trees** as follows:

Office Telephone: 023 8098 6229

REMEMBER:

ALL TREE DAMAGE IS AVOIDABLE –

SO AVOID IT!

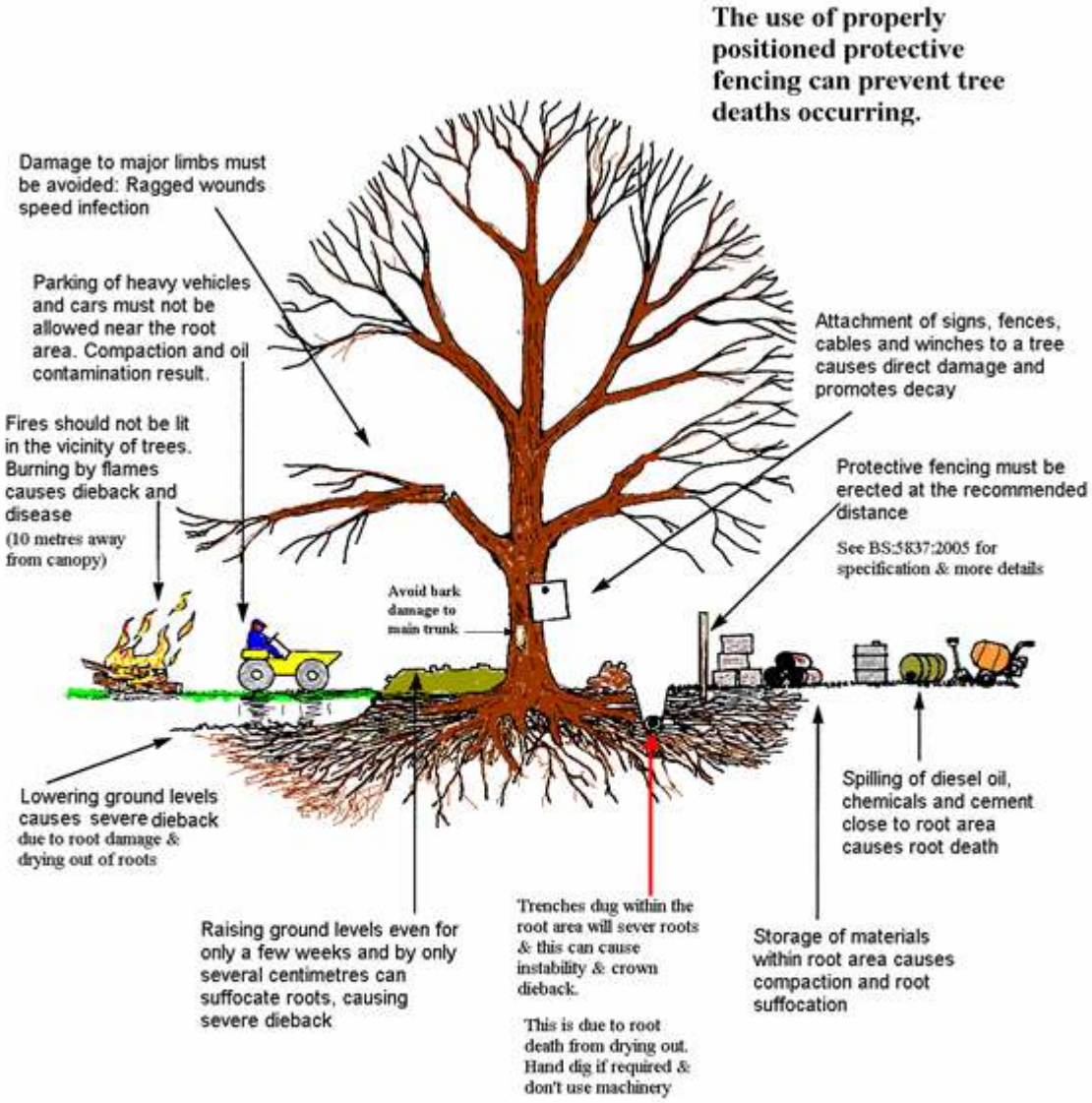
PROTECTIVE BARRIERS.
THESE BARRIERS MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.

TREE PROTECTION AREA
KEEP OUT !

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

Common causes of Tree Death

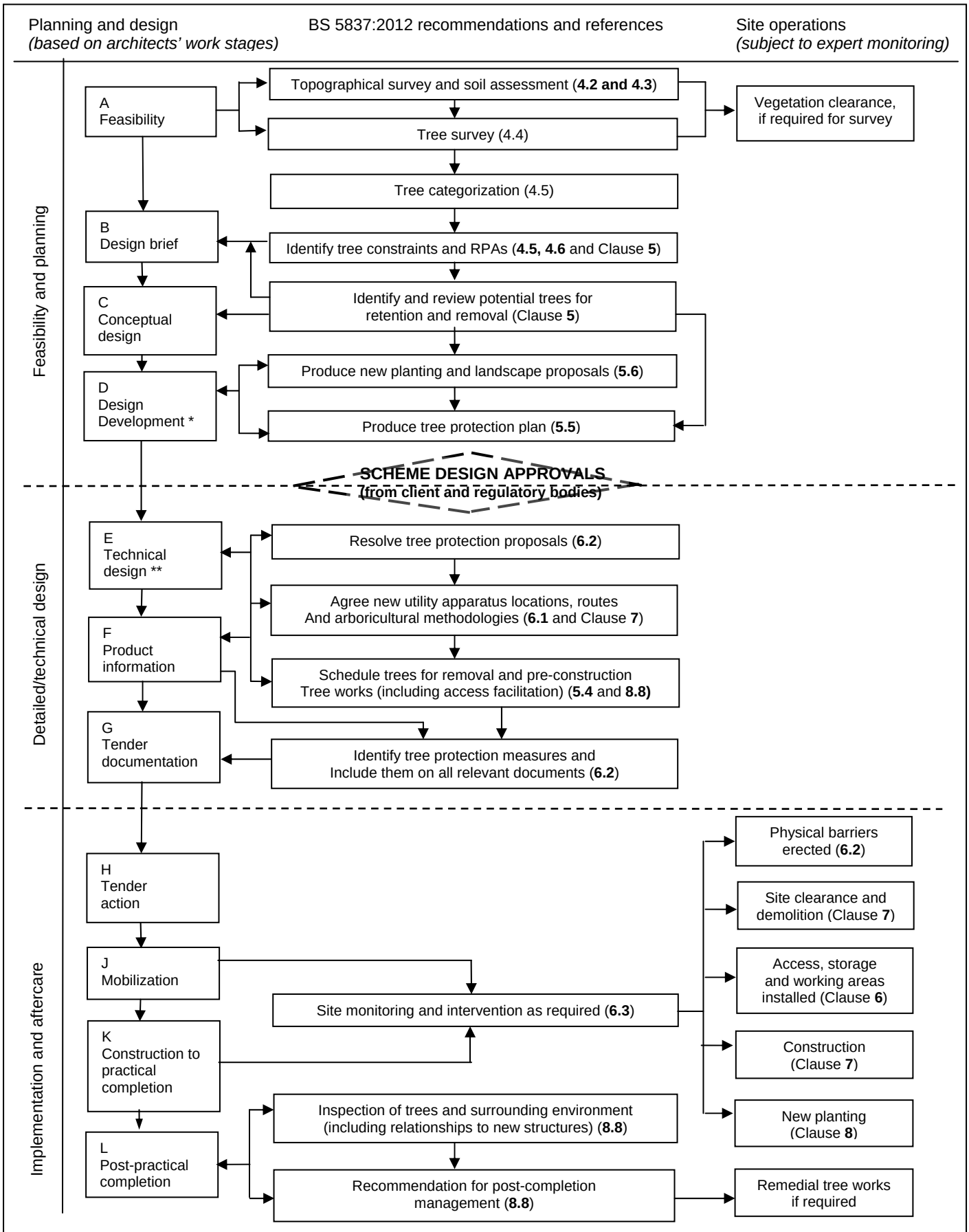


Please use copies of this as an on-site poster for personnel

(Source: Arboricultural Information Exchange website, 2005)


CB6

Figure 1 The design and construction process and tree care



* The design development stage D in particular is an iterative process, responding to and resolving constraints as they emerge but, once completed, there needs to be a high level of certainty for proposed outcomes.

** See Commentary on Clause **6.**


CB7

The Professional Arboricultural Consultancy

Qualifications of
James Fuller
Senior Consultant

James Fuller FdSc.Arb, BTEC Nat.Dip Arb, TechArbor.A joined CBA Trees in 2007 as a gap-year junior surveyor/arborist having attained the Foundation Degree in Arboriculture at Sparsholt College near Winchester and has more recently acquired the Professional Tree Inspector's Certificate.

Over the years James has gained experience in every field of our work, undertaking all elements of consultancy including large BS5837:2012 tree surveys using the latest data capture equipment to produce Implication Assessments and Method statements for planning applications.

Having broadened his knowledge and gained considerable experience, James is now a retained Senior Consultant, undertaking site assessments, site monitoring, and provision of advice to prominent development companies for large and complex projects.