September 2015
CBA10385 v1A

Quadrant Town Planning

ARBORICULTURAL STATEMENT

Site:
1 Squires Mount,
London,
NW3 1EG

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The Complete Arboricultural Consultancy

CBA10385

ARBORICULTURAL STATEMENT

Arboricultural Implications Assessment and Method Statement

guided by recommendations within BS5837:2012

Client:	Quadrant Town Planning
Site:	1 Squires Mount, London, NW3 1EG
Arboricultural Consultant:	Dominic Poston *F.Arbor.A. MICFor, CEnv, Prof Dip (RFS), BSc (Hons), HDip.*
Date:	September 2015

SUMMARY

The proposal is to partly demolish and re-construct an existing boundary brick wall forming the boundary between Squires Mount and the adjoining highway (E Heath Road). The site is located at grid reference TQ 26655 86238 and accessed off of Squires Mount, London Borough of Camden, NW3 1EG.

This Arboricultural Statement will demonstrate the protection measures required in order to safeguard existing trees shown for retention and must be read in association with the Tree Protection Plan CBA10385.02_TPP which identifies the location and crown spread of existing trees; their identified root protection areas and their value categorisation according to BS5837; and visually identifies the protection measures required.

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 eight (8) trees and three (3) groups of trees can potentially be retained within the development as detailed within this report.

No significant trees will be lost to facilitate the works, although the selective removal or pruning of individual low category 'C' trees and shrubs may be required in order to create a working space.

There are three (3) trees and part of two (2) groups that should be removed for sound arboricultural management regardless of any proposals.

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

CONTENTS

SUPPORTING INFORMATION/APPENDICES:

GUIDING PRINCIPLES/APPENDICES:

PART 1
ARBORICULTURAL IMPLICATIONS ASSESSMENT

1.0 INTRODUCTION

1.1 There is a proposal for the site located at 1 Squires Mount, London, NW3 1EG.

1.2 The approved proposal is for the part demolition and re-construction of the existing boundary wall between Squires Mount and E Heath Road.

1.3 Document disclosure provided:

- The proposals were provided by Watermans and included details around how the existing boundary wall will be constructed.

1.4 Our tree survey was plotted on an Ordnance Survey base plan, and this has been the basis for the production of subsequent plans.

1.5 Our advice has been sought on the principles of the proposals in relation to the potential impact on the existing tree stock and to inform and facilitate methods and measures for tree protection.

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 compliant Tree Survey Plan (Plan CBA10385.01_TSP 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 approved layout including a Tree Protection Plan (CBA10385.02_TPP) 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. Once the main contractors are appointed and following the required pre-commencement site meeting, 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 the London Borough of Camden.

3.0 DESCRIPTION OF THE SITE

3.1 The site is located at grid reference TQ 26655 86238 and accessed off of Squires Mount in the London Borough of Camden, NW3 1EG. The site is a private residential garden attached to Squires Mount and accessed by the residents therein. The surveyed area could be classified as a sunken garden, contained between a more formal lawned area to the south-west (retained by a brick wall and accessed via

steps) and the E Heath Road to the north-east which is abutted by the boundary wall requiring repair.

3.2 The existing tree stock is dominated by a mature Lime (Tree 1) and Horse Chestnut (Tree 2) otherwise the tree stock is generally of moderate to low value with groups of self-seeded vegetation opportunistically spreading along the area immediately adjacent to the boundary wall.

4.0 THE TREE STOCK

4.1 A tree survey was undertaken by CBA Trees on 17th September 2015 that identified eight (8) individual trees and three (3) groups of trees. The Tree Survey Schedule is appended at CB1 and Tree Survey Plan CBA10385.01_TSP 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 were no 'U' grade trees on or adjacent to the site at the time of surveying.

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 is one (1) individual 'A' grade tree on the site at the time of surveying (Tree 1).

Category B = Trees of moderate quality and value, capable of making a significant contribution for in excess of 20 years. There were three (3) individual 'B' grade trees on the site at the time of surveying (Trees 2, 3 and 4)**.**

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 four (4) individual 'C' grade trees and three (3) 'C' grade groups of trees within the site at the time of surveying (Trees 5, 6, 7 and 8 and Groups 1, Group 2 and Group 3).

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 CBA Trees has not been instructed to investigate whether trees on or adjacent to the site are protected by a Tree Preservation Order or located within a Conservation Area. However, the client has advised that the property is a Grade II listed building and that the site lies within a Conservation Area. It is advised that the client obtain written confirmation from the London Borough of Camden to establish the legal status of these trees prior to any works being undertaken, outside the remit of an approved planning application.

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 relevant Root Protection Areas (RPA). The implications of the proposed work are detailed below, along with any mitigating measures to ensure the retention of these trees.

6.2 Trees numbered 5, 6 and 7 and part of Groups 2 and 3 are advised for removal for reasons of sound arboricultural management, regardless of any approved works.

7.0 SUMMARY OF ARBORICULTURAL IMPLICATIONS

7.1 The following summary of implications relates to only those trees that will require mitigation measures to allow for construction operations. Trees and groups not listed below can be fully protected in accordance with BS5837:2012 as indicated on Plan CBA10385.02_TPP

Tree No.	Species	BS 5837:2012 Cat	Potential cause of harm	Implication	Mitigation
1	Common Lime	A	• Working area within RPA	• Severance/damage to root material	• Arboricultural supervision / hand dig
Grp 2 Grp 3	Mixed Species	C	• Facilitation pruning for works access	• Removal of individual branches, stems or facing back of vegetation to allow access.	• None required

8.0 PRE-COMMENCEMENT SITE MEETING

8.1 It is recommended that a pre-commencement site meeting should be held prior to any works commencing on site, to agree all approved processes with the arboricultural consultant, the construction personnel and the London Borough of Camden. This meeting could be used to formally agree the methods of work, material storage and tree protection measures prior to commencement of any work and associated clearance.

9.0 ADDITIONAL ARBORICULTURAL ADVICE FOR SITE PERSONNEL

9.1 To provide site personnel with additional information regarding the requirements of Tree Protection, a leaflet (appended at CB5) shall be issued to all staff at the time of their site induction. Spare copies of this leaflet shall be available in the site office as replacements.

9.2 In order to inform site personnel of the purpose of the barriers, information notices shall be fixed to the barriers at 5m intervals. These notices shall be of all-weather construction and shall be substantially in the form of the specimen provided at appendix CB5 and replaced as and when necessary.

10.0 PRE-DEVELOPMENT TREE WORKS

10.1 All tree works will be undertaken prior to the commencement of site preparation and construction works.

10.2 **All permitted or approved tree work** should be carried out in accordance with the British Standard *"Recommendations for Tree Work"* BS3998:2010, by suitably qualified and experienced professional arborists. Under no circumstances shall site personnel undertake any tree pruning operations. All tree surgery works should be carried out prior to any commencement of work on site, and erection of protective barriers.

10.3 CBA Trees has not been instructed to investigate whether trees on or adjacent to the site are protected by a Tree Preservation Order or located within a Conservation Area. The client is advised to obtain written confirmation from the London Borough of Camden to establish the legal status of these trees prior to any works being undertaken, outside the remit of an approved planning application.

10.4 Consideration should be given to the timing of the proposed tree works to avoid the active growing period of trees. Therefore, all tree work should ideally be carried out during the dormant period from November through to February and then again from June to August.

10.5 Due to the bird-nesting season, considered to be from 1st March through to the 31st July (Natural England) depending on weather conditions, consideration must also be given to the potential for nesting birds. Therefore, where tree work is to be carried out within June, July or August the project ecologist must be consulted to:

- Complete or advise on a pre-works survey that needs to be carried out by a suitably competent person. As a general rule, it should be assumed that birds will be nesting in trees, and it is down to contactors to assess, record and confirm that any works carried out in the management of trees and other vegetation has not disturbed actively nesting birds.*

- Ground vegetation, and therefore ground nesting birds, can often be overlooked by tree workers so additional care and controls should be taken when access and egress to the work site may also cause disturbance or damage to a nesting site. This is also true for retained trees on site as the removal of adjacent trees or remedial works on a tree may lead to an established nest being abandoned, exposed to the elements or predation. This action is also a breach of the Act and therefore could lead to prosecution due to the infringement of the Wildlife and Countryside Act 1981 and breaching the Conservation of Habitats and Species Regulations 2010 (as amended).

10.6 Should the requirement for additional tree works become apparent during the construction process; written consent will be required from the London Borough of Camden prior to these additional works being undertaken.

10.7 All tree works that are required to facilitate the work on site are detailed within the Tree Works Schedule appended at CB4.

11.0 TREE PROTECTION MEASURES

11.1 *Reasons for Tree Protection*

The correct and timely installation and maintenance of tree protection measures is the most important action necessary to ensure retained trees and tree groups, remain unaffected by development operations. Exclusion of construction activity from the outset of site preparation will ensure those trees identified for retention are maintained in a safe and healthy condition.

Although aerial parts of the tree, trunk, branches and twigs are obvious, extensive and irreparable damage can be caused to the roots and rooting environment without any immediately noticeable effect. Severance of large roots in close proximity to the stem can result in the immediate loss of stability and/or rapid death whilst damage to more distal parts of the root system or rooting environment will result in a slow decline in tree health over a period of several years, resulting in premature loss.

11.2 *Damage to Trunks Stems and Branches*

Impact damage to the crown of the tree can result in the loss of leaves that produce starch and sugars (carbohydrates) and a reduction in the visual amenity that established trees provide. These carbohydrates are necessary for maintaining all biological functions within the tree, including growth, reproduction and defence. Extensive crown damage will reduce the tree's ability to produce carbohydrates and increase physiological stress on the tree.

The bark protects the underlying vascular tissue and cells responsible for growth from drying, disease and decay. Bark is loosely attached to the underlying tissue and can be easily damaged or removed through direct contact. It is particularly susceptible to damage when trees are young or in early spring following the onset of growth.

Impact damage which removes bark, results in dysfunction of the underlying vascular tissue preventing transport of water, mineral nutrients and carbohydrates to parts of the tree to which they are connected. If damage to the bark extends around the whole circumference, the root, branch or trunk the section beyond the damage may be killed.

Branches which are either broken or are torn from the trunk of the tree, create wounds which are prone to colonization by wood destroying organisms. These organisms cause internal decay, which result in future tree failure and premature loss.

11.3 *Purpose of Tree Protection*

All site operations will be planned, implemented and supervised to prevent the following:

- Root severance
- Damage to the bark, branches and trunks
- Compaction of the soil within the Construction Exclusion Zone
- Alterations in soil level
- Soil contamination by phytotoxic materials such as herbicides, petrol, oils, diesel, cement and concrete washings or other construction additives

11.4 *Tree Protection*

Prior to the commencement of any construction activity and immediately following the completion of recommended tree works (CB4) protective barriers and ground protection (in the precautionary zone) in accordance with Plan CBA10385.02_TPP must be erected.

Following the completion of demolition works and immediately prior to the required excavation for the identified retaining wall, ground protection may be removed to allow pedestrian access.

A copy of the Tree Protection Plan will be displayed in the site office and canteen as a point of reference for all site operatives.

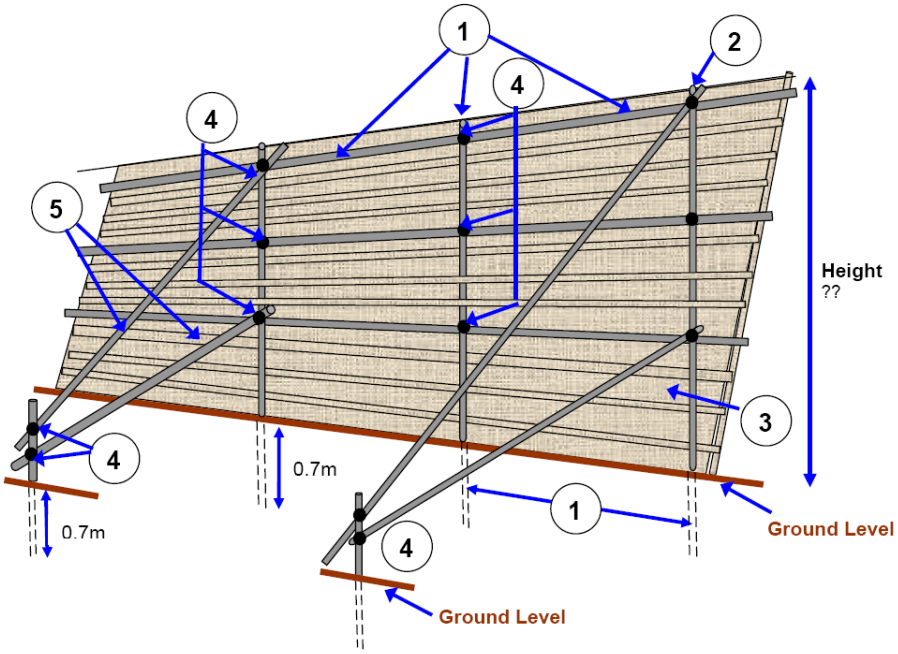
11.5 *Protective Barriers*

Tree 1 has an RPA that is in close proximity to the wall to be demolished. Inadvertent collapse of the section closest to the tree can result in extensive damage to surface roots. As such, these trees will be protected during the demolition phase with barriers comprising of the following:

A scaffold frame will be constructed to a height of 2m in the location indicated on Plan CBA10385.02_TPP. Vertical scaffold poles will be inserted into the ground to a minimum depth of 700mm; poles will be installed at a maximum of 2-metre centres.

Every other pole will be braced to resist impacts at heights of not more than 1.8 metres spacing. Horizontal scaffold poles will be mounted at centres of not more than 1.8 metres. The frame will be clad in close-fitting horizontal scaffold boards, securely clamped to each vertical scaffold pole or 20mm exterior grade ply board.

Figure 1: Heavy Duty Protective Barrier



1. Standard scaffold poles
2. Uprights driven into ground to a depth of 750mm minimum
3. Horizontal scaffold boards, close mounted, secured with board clamps on each vertical post to full height of scaffold frame
4. Scaffold clamps
5. Frame braced to resist impact at alternate vertical posts and changes of direction brace supports installed every 1.8m in height subject to scaffold installation requirement

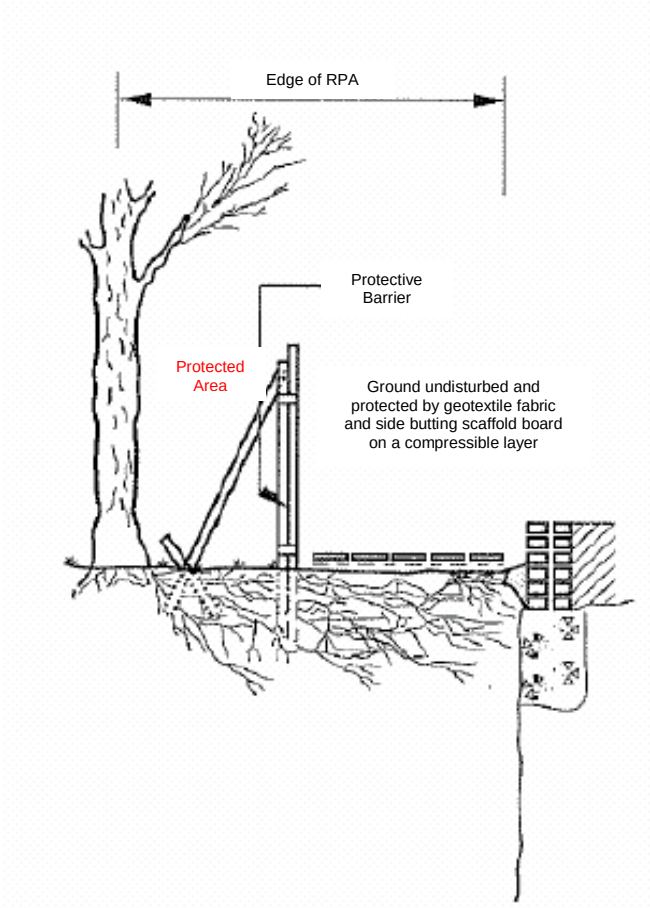
Barriers will remain *in-situ* until all works are complete and all demolition waste, plant and machinery are removed from site or otherwise agreed with the London Borough of Camden.

11.6 *Ground Protection*

Tree 1 requires construction activity within its identified root protection area (RPA). Ground protection will be implemented as follows and within the area marked 'Precautionary Zone' on plan CBA10385.02_TPP during the demolition phase.

This method will consist of a single thickness of butt jointed scaffold boards supported on a 150mm thick layer of composted woodchip that is prevented from mixing with the underlying soil by geotextile separation layer.

Figure 2: Ground Protection Specification



12.0 DEMOLITION

12.1 Demolition of the existing wall will be carried out to prevent damage to existing retained trees.

12.2 Demolition of the wall 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. During the induction, trees that 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.

- The existing wall and foundations are to be pulled into the contractors work area on E Heath Road 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 barriers.
- 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.

13.0 EXISTING SERVICES

13.1 No information has been provided on the location and size of existing services. However, existing services within the RPA and CEZ of retained trees will not be chased out, but cut at the edge of any structure and left *in- situ.*

13.2 Cabling will only be recovered from beneath a CEZ where it is located in ducting, and can be removed by winching from an existing service manhole beyond the CEZ.

13.3 Service pipes and ducts, where they are located within the CEZ or RPA of retained trees, will be made redundant either by pipe bursting or by filling with an inert material such a foamed concrete.

14.0 AVOIDING DAMAGE TO STEMS AND BRANCHES

14.1 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.

15.0 VEHICULAR MOVEMENTS

15.1 It is not anticipated that there will be a need for any vehicular movement near the retained trees, given that the working area will be E Heath Road and there is established access/areas of existing hard surface suitable for the purpose.

16.0 SITING OF TOILETS AND MATERIALS

16.1 No materials or temporary site structures are to be constructed within the RPA of any retained tree in order to avoid unnecessary damage to tree roots.

17.0 GENERAL CONSIDERATIONS WITHIN AND OUTSIDE THE CONSTRUCTION EXCLUSION ZONE

17.1 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 the London Borough of Camden prior to the specific activity taking place.

17.2 In addition to the above, further precautions are necessary:

- 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. This should take into consideration the topography of the site and slopes, to avoid materials such as concrete washings running towards trees.

- Fires shall not be lit in a position where their flames can extend to within 5 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)

18.0 UTILITY SERVICE CONNECTIONS

18.1 Details of service location proposals have not been forwarded to CBA Trees at the time of compiling this assessment. It is however assumed, given the type of work there is no need for additional service provision or amendment to existing service routes.

19.0 FOUNDATION DESIGN AND CONSTRUCTION

19.1 The proposed new boundary wall will require new or augmented foundations as detailed in Watermans drawing ref: STR-SA-20-01-A01. This will require excavation to 1900mm below existing ground level and extend 1250mm into the site. However it is not anticipated that this will have a long-term negative impact upon any of the moderate or high value retained trees due to the following points:

I. The working area falls within the precautionary zone but at the outer edge of the identified RPA and below an existing low retaining wall. This existing retaining wall is likely to have deflected roots from Tree 1.
II. Excavation in the upper most soil horizon and down to 600mm (likely rooting medium) will be undertaken by hand and under arboricultural supervision.

Nonetheless, all excavation required within the marked ‘Precautionary Zone’ on plan CBA10385.02_TPP will be undertaken under supervision by the retained arboricultural consultant.

19.2 In the event that roots are required to be pruned, sharp cutting tools are to be used to ensure the minimum damage is caused. Clean cuts can result in the redevelopment of fine roots. Poor untidy cuts can, however, result in root die back and decay. No roots greater than a diameter of 25mm are to be pruned without prior agreement with the appointed arboricultural consultant and/or Local Authority representative.

19.3 Work may also impact upon the RPA of Group 2 and Group 3. However these trees are of low value and this should not form a constraint upon the proposal.

20.0 GROUND LEVEL ALTERATIONS

20.1 Due to the existing low level retained wall within the site, there is no anticipated impact from changed soil levels as a result of this proposal.

21.0 SITE MONITORING AND SUPERVISION

21.1 It is recommended that on-going arboricultural site monitoring takes place for the duration of the proposed works, 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. The London Borough of Camden are to Condition site monitoring if required.

21.2 If Conditioned, it will take the form of regular inspections (to be agreed, although given the proposal adhoc visits to supervise works within the RPA of Tree 1 is advised). The aim of the visits is to maintain on-going liaison with all personnel involved in the site works, the London Borough of Camden and its Tree Officer.

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

21.4 In addition, a site logbook for tree protection measures is kept to record all stages of the works from the erection of the protective barriers, right through to the completion of the project. This will be made available to the arboricultural consultant and the 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 barriers					
	Inspection of protective barriers					
	Demolition works					
	Excavation within RPA of Tree 1					

21.5 The London Borough of Camden's 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.

22.0 REPORT DAMAGE TO TREES AND TREE PROTECTION BARRIERS

22.1 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 the London Borough of Camden.

22.2 Should damage occur to a protective barrier to impair its function in protecting trees, all work will cease near the damage, until the barrier has been returned to standard.

23.0 CONSTRUCTION WORK TIMINGS

23.1 This is for determination by the London Borough of Camden.

24.0 REMOVAL OF PROTECTIVE BARRIERS

24.1 When the works are completed, all site machinery has been removed and any landscaping for the principal area of the site has been implemented, the protective barriers will be dismantled.

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

25.0 COMPLETION MEETING

25.1 Upon completion of all the works specified above, and in line with procedures also specified, the retained arboricultural consultant will invite the London Borough of Camden Tree Officer to meet on site, to discuss the project and to agree on any remedial works required.

26.0 CONCLUSIONS

26.1 The approved proposals for the demolition and re-construction of a boundary wall have been assessed broadly in accordance with BS5837:2012 *"Trees in Relation to Design, Demolition and Construction – Recommendations"*.

26.2 No existing significant trees are required for removal in order to implement the proposals.

26.3 It is our opinion that the proposals will not have a detrimental effect on the local visual amenity or significantly alter the visual treed character of the local area.

26.4 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.

27.0 CONTACT LIST

27.1 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 Camdens's Tree Officer
- London Borough of Camden's Planning Case Officer
- Site Supervisor and Foreman

27.2 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.

28.0 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
- Conservation of Habitats and Species Regulations 2010 (as amended)
- Town and Country Planning Acts


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.

CBA10385

	BS5837:2012 TREE SURVEY REPORT	
	Site:	1 Squires Mount, London, NW3 1EG
	Date:	17th September 2015
	Consultant:	Dominic Poston *F.Arbor.A, MICFor, CEnv, Prof Dip (RFS), TechCert (Arbor.A), HND*
	Tagged:	No

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.

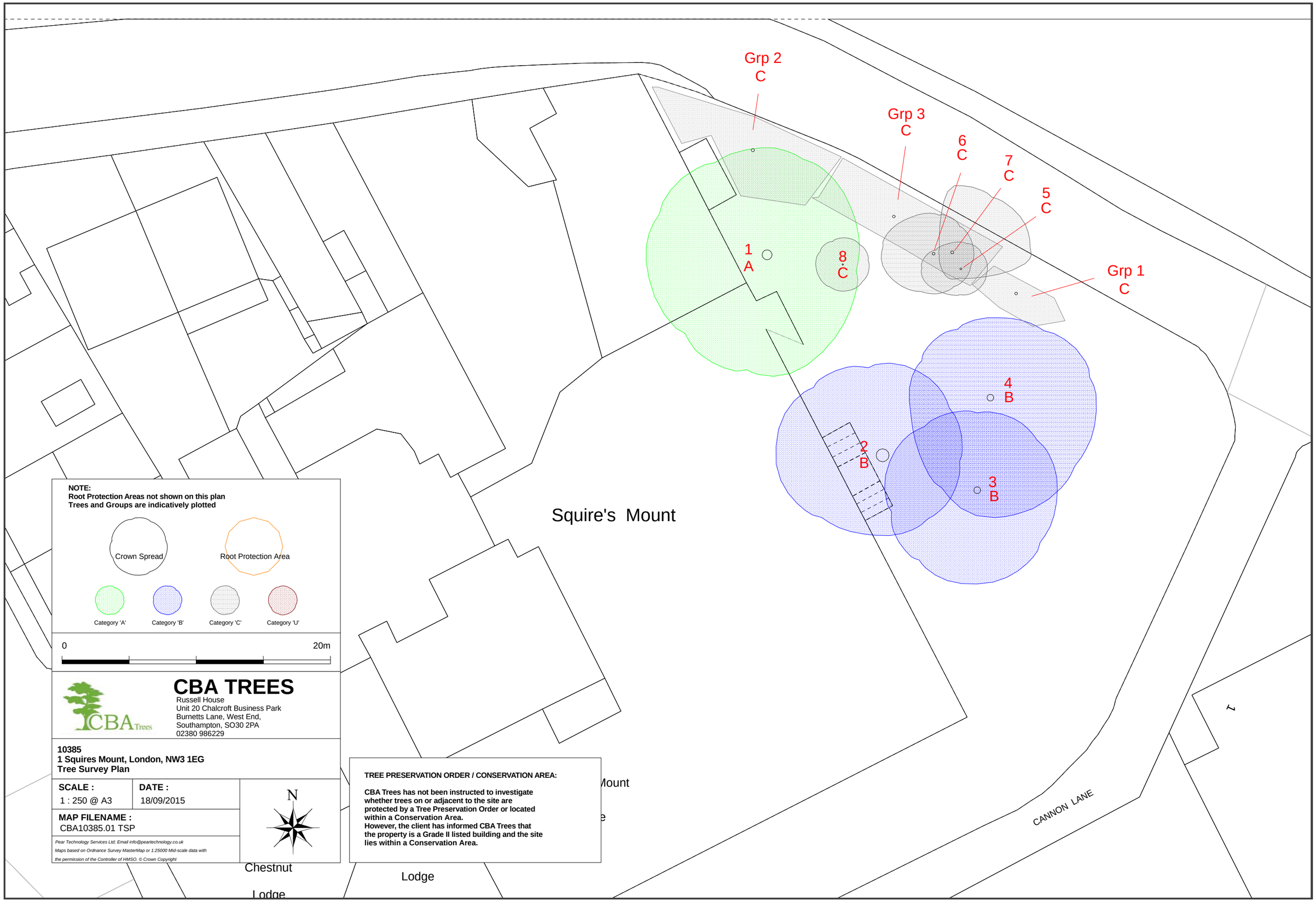
TREE PRESERVATION ORDER/CONSERVATION AREA:

CBA Trees has not been instructed to investigate whether trees on or adjacent to the site are protected by a Tree Preservation Order or located within a Conservation Area. However, the client has informed CBA Trees that the property is a Grade II listed building and the site lies within a 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	Common Lime *Tilia europaea*	23	S	750	254	9.0	N 8 E 7 S 9 W 9	N 3 E 1 S 1 W 2	Mature	Good	Structural Condition - Good Basal suckers Good shape and form Cavity at 7m above ground level (200mm diameter) on north side	None required at time of survey	40+	A1
2	Common Horse Chestnut *Aesculus hippocastanum*	22	S	960	417	11.5	N 7 E 6 S 6 W 8	N 3.5 E 4 S 4 W 2	Mature	Fair	Structural Condition - Fair Old pruning wounds Significant Horse Chestnut Leaf Miner damage Major pruning wounds with associated cavities around stem from 3m up to 6m above ground level *Ganoderma sp* at ground level on west side	Full ground level inspection using decay detection equipment Monitor condition annually	20+	B1
3	Purple Leaf Norway Maple *Acer platanoides 'Crimson King'*	20	S	500	113	6.0	N 6 E 6 S 7 W 7	N 5 E 5 S 5 W 5	Semi-mature	Good	Structural Condition - Fair No visible defects	None required at time of survey	40+	B1
4	Common Horse Chestnut *Aesculus hippocastanum*	15	S	510	118	6.1	N 6 E 8 S 9 W 6	N 5 E 7 S 5 W 4	Semi-mature	Fair	Structural Condition - Fair Growing on bank Significant Horse Chestnut Leaf Miner damage present	None required at time of survey	20+	B1
5	Himalayan Whitebeam *Sorbus cuspidata*	6	S	150	10	1.8	N 2 E 2 S 2 W 3	N 3 E 8 S 2 W 2	Young	Fair	Structural Condition - Fair Growing unsustainably close to top of small retaining wall	Advise removal	20+	C3

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
6	Himalayan Whitebeam *Sorbus cuspidata*	11	S	200	18	2.4	N 3 E 3 S 3 W 4	N 3 E 6 S 3 W 3	Young	Fair	Structural Condition - Good Growing unsustainably close to top of small retaining wall	Advise removal	20+	C3
7	Silver Birch *Betula pendula*	16	S	230	24	2.8	N 5 E 6 S 2 W 1	N 5 E 6 S 3 W 4	Semi-mature	Fair	Structural Condition - Poor Growing on bank Ivy on trunk and in crown Growing unsustainably close to base of small retaining wall Leaning into road	Advise removal	10+	C1
8	Himalayan Birch *Betula utilis*	5	S	75	3	0.9	N 2 E 2 S 2 W 2	N 2 E 2 S 2 W 2	Young	Good	Structural Condition - Fair Included union	Formative prune required	40+	C1
Grp 1	Common Yew	6	S	200	18	2.4	N - E - S - W -	N - E - S - W -	Young	Fair	Structural Condition - Fair Group of four yew growing atop and at base of existing small retaing wall	None required at time of survey	40+	C3
Grp 2	Yew x 5 Lawson Cypress x 7	8	S	250	28	3.0	N - E - S - W -	N - E - S - W -	Semi-mature	Fair	Structural Condition - Fair Growing on bank Included bark Tight unions Some leaning towards road	Remove stems in northern corner leaning towards road	40+	C3
Grp 3	Laurel Holly Cherry	6	S	200	18	2.4	N - E - S - W -	N - E - S - W -	Young	Good	Structural Condition - Fair Growing on bank Suppressed and stunted Self seeded along existing retaining wall All in competition for light	Thin group and retain better specimens atop retaining wall	20+	C3


CB2



NOTE:
Root Protection Areas not shown on this plan
Trees and Groups are indicatively plotted

Crown Spread

Root Protection Area

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

0 20m

CBA TREES

Russell House
Unit 20 Chalcroft Business Park
Burnetts Lane, West End,
Southampton, SO30 2PA
02380 986229

10385
1 Squires Mount, London, NW3 1EG
Tree Survey Plan

SCALE :	**DATE :**
1 : 250 @ A3	18/09/2015

MAP FILENAME :
CBA10385.01 TSP

N

TREE PRESERVATION ORDER / CONSERVATION AREA:

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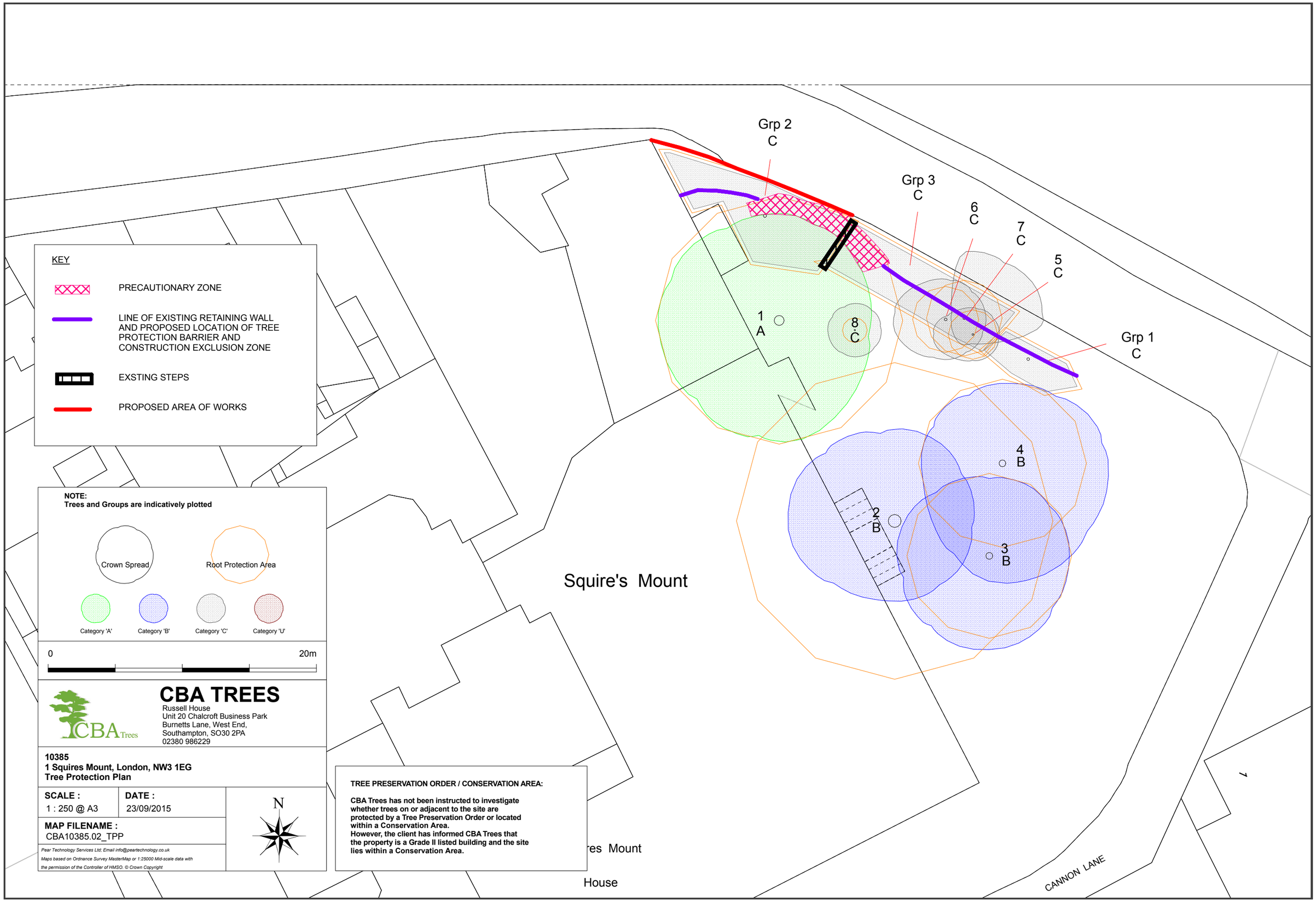
CB3


KEY
PRECAUTIONARY ZONE
LINE OF EXISTING RETAINING WALL AND PROPOSED LOCATION OF TREE PROTECTION BARRIER AND CONSTRUCTION EXCLUSION ZONE
EXSTING STEPS
PROPOSED AREA OF WORKS
NOTE:
Trees and Groups are indicatively plotted
Crown Spread
Root Protection Area
Category 'A'
Category 'B'
Category 'C'
Category 'U'
0
20m
CBA TREES
Russell House
Unit 20 Chalcroft Business Park
Burnetts Lane, West End,
Southampton, SO30 2PA
02380 986229
10385
1 Squires Mount, London, NW3 1EG
Tree Protection Plan
SCALE :
1 : 250 @ A3
DATE :
23/09/2015
MAP FILENAME :
CBA10385.02_TPP
Pear Technology Services Ltd; Email info@peartechnology.co.uk
Maps based on Ordnance Survey MasterMap or 1:25000 Mid-scale data with the permission of the Controller of HMSO. © Crown Copyright
N
TREE PRESERVATION ORDER / CONSERVATION AREA:
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However, the client has informed CBA Trees that the property is a Grade II listed building and the site lies within a Conservation Area.
Grp 2
C
Grp 3
C
6
C
7
C
5
C
Grp 1
C
1
A
8
C
4
B
2
B
3
B
Squire's Mount
CANNON LANE
7


CB4

CBA Trees	**TREE WORKS SCHEDULE**			
	Client:	Quadrant Town Planning	**Site:**	1 Squires Mount, London, NW3 1EG
	Date:	September 2015	**Consultant:**	Dominic Poston *F.Arbor.A, MICFor, CEnv, Prof Dip (RFS), BSc (Hons), TechCert (Arbor.A), HND*

Tree No.	Species	Recommended Works
5	Himalayan Whitebeam	• Fell to ground level and poison resultant stump to prevent re-growth
6	Himalayan Whitebeam	• Fell to ground level and poison resultant stump to prevent re-growth
7	Silver Birch	• Fell to ground level and poison resultant stump to prevent re-growth
Grp 2	Lawson Cypress	• Fell to ground level leaning stems in northern corner
Grp 3	Mixed	• Fell and poison resultant stumps self-seeded plants at foot of existing boundary wall

- 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 tree protection barriers.

These barriers must be respected at all times and no attempts shall be made to damage, bypass or ignore them.

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: 020 8098 6229

REMEMBER:

ALL TREE DAMAGE IS AVOIDABLE –

SO AVOID IT!

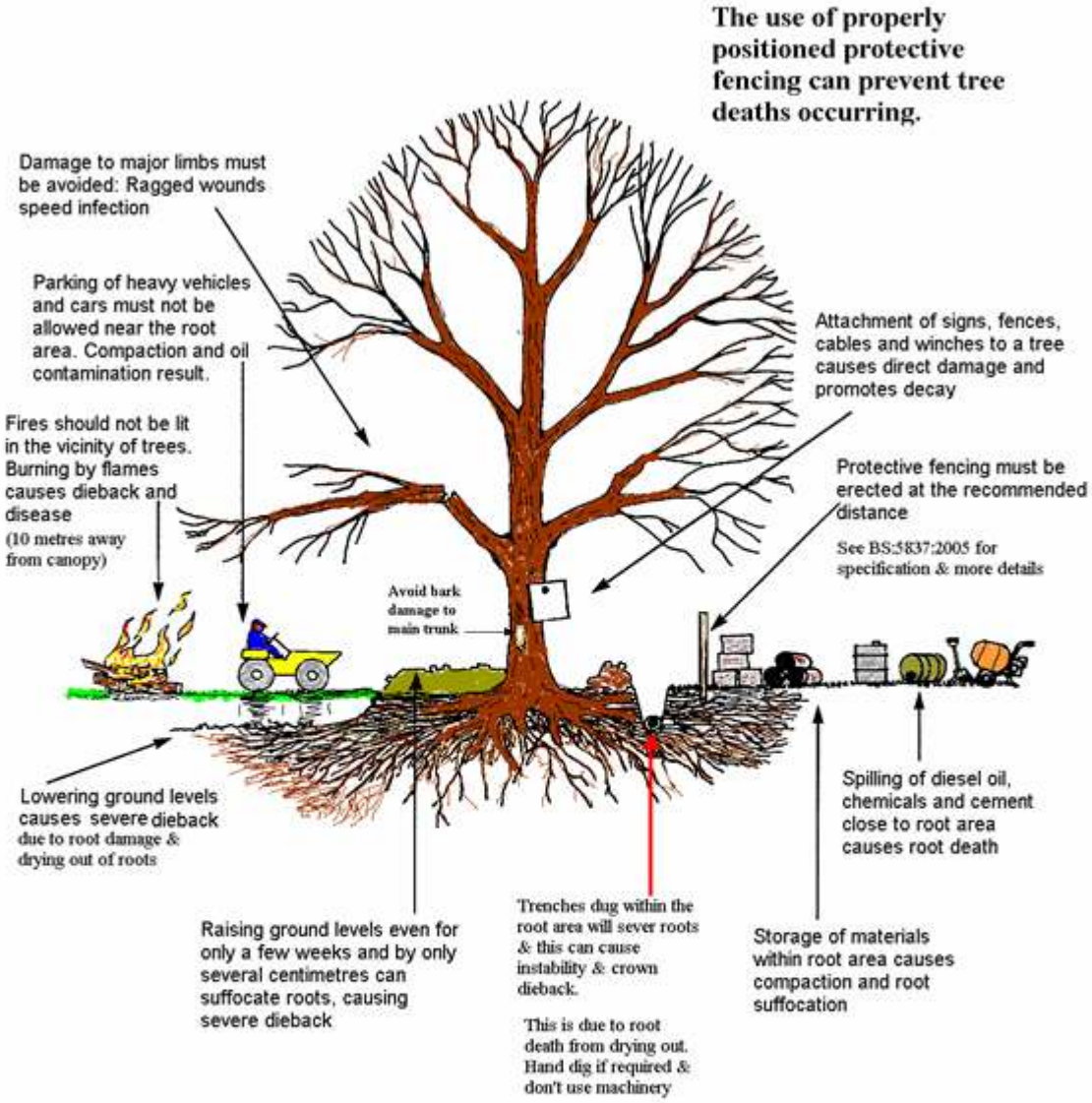
PROTECTIVE BARRIERS.
THESE BARRIERS MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.

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

The Professional Arboricultural Consultancy

Qualifications of
Dominic Poston
Senior Consultant

Dominic Poston F.Arbor.A. MICFor, CEnv, Prof Dip (RFS), BSc (Hons), TechCert (Arbor.A), HND has recently joined CBA Trees as a Senior Consultant and brings with him a wealth of knowledge and experience.

Having attained a Bachelor of Science Degree in Horticulture, a Higher National Diploma in Landscape Management and the Royal Forestry Society's Professional Diploma in Arboriculture, Dominic is a fellow of the Arboricultural Association and a Chartered Arboriculturist and Chartered Environmentalist.

Through local authority experience he has been involved as a supervising officer and advisor to planning teams on many developments near trees. Through private sector experience he has provided arboricultural advice, ranging from feasibility through to implementation on many development projects near trees. He has extensive experience in the management of large tree stocks, implementing the recommendations within BS5837 and acting as an expert witness. He has considerable experience working closely with clients and as part of a multi-disciplinary team.