Arboricultural Survey

246-248 Kilburn High Road
London
NW6 2BS

16th May 2017

PJC ref: 4437/17-01

This report has been prepared by

PJC Consultancy Ltd

on behalf of

Andmore Planning Ltd

Prepared by	**Peter Davies FdSc Arboriculture M.Arbor.A** Peter has a Foundation Degree in Arboriculture and is a professional member of the Arboricultural Association. He has ten years experience in the arboricultural industry, originally working as a groundsman and feller, and progressing into consultancy. He is a Lantra accredited professional tree inspector.
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1 EXECUTIVE SUMMARY

1.1 **Site location:** The site is situated between Kilburn High Road and Kilburn Grange Park in the London Borough of Camden. It has a central OS national grid reference of TQ249842. The surrounding land use is comprised of residential development to the north and south (the development to the north is under construction on the date of this report), Kilburn Grange Park to the east and a combination of residential and commercial properties on Kilburn High Road to the west. The location of the site within its environs is shown in figure 1.

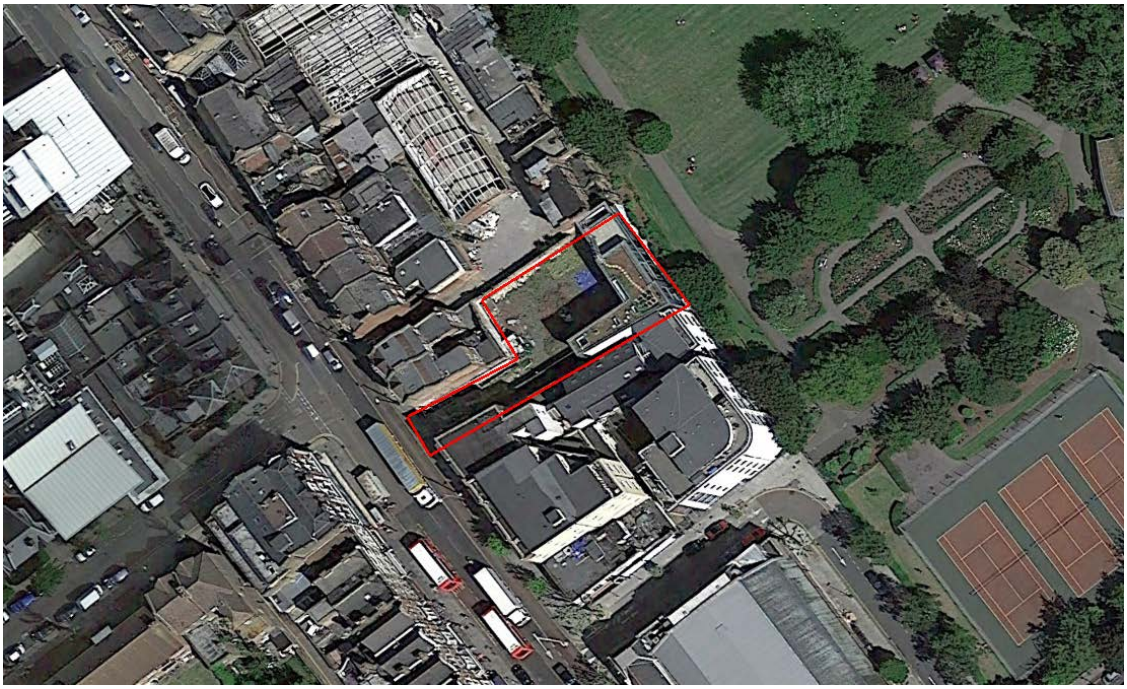

Figure 1: Location of Site and Environs

1.2 **Proposal:** A proposal has been outlined to demolish and replace the existing residential building at 246-248 Kilburn High Road with a new larger residential development comprising two blocks with a central courtyard area. The site will utilise the existing access onto Kilburn High Road.

1.3 **Tree removals:** No trees will be removed to facilitate the proposed development. A mixed shrub bed located within Kilburn Grange Park will be removed and subsequently replaced during the soft landscaping phase of development.

1.4 **Access facilitation pruning:** No access facilitation pruning is anticipated to enable to the proposed development.

1.5 **Works within root protection areas:** The replacement building will be located outside the root protection areas of all retained trees. No works are anticipated within root protection areas beyond potential soft landscape operations.

2 INTRODUCTION

2.1 **Instruction:** PJC Consultancy has been instructed by Andmore Planning Ltd to provide an arboricultural impact assessment and arboricultural method statement for proposed construction works at 246-248 Kilburn High Road. The proposal is to construct new residential apartments that better utilise the available space at the site than the existing building.

2.2 **Brief:** PJC Consultancy has been commissioned to carry out a tree survey and to compile an arboricultural impact assessment in accordance with guidelines set out in BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*'.

2.3 **Scope of this report:** This report is concerned with all significant trees located within the site boundary and those located around the curtilage of the site with the potential to impact or be impacted by the proposed construction works (in relation to root or crown protection or foundation design).

2.4 **Contents of report:** This report includes the following:

- *Initial Tree Survey* – A schedule of existing trees at the site including an assessment of their condition and value based on the existing land use (not in consideration of the development proposals).
- *Arboricultural impact assessment* – A schedule of trees to be removed or pruned as a result of the proposed development as well as an assessment of the impact the proposed construction works will likely have on retained trees including post development pressures and recommendations on mitigation measures to be implemented.
- *Arboricultural method statement* – Details of the practises required whilst the proposed development is constructed to ensure the retained trees are adequately protected from harm.
- Tree Constraints Plan, Tree Retention Plan and Tree Protection Plan.

2.5 **Documents and information provided:** The following documents were provided by the client to produce this report:

- Drawing ref. P1512_P_101 – Existing Site Plan
- Drawing ref. P1512_P_102 – Proposed Site Plan
- Drawing ref. P1512_P_200 – Proposed Ground Floor Plan
- Drawing ref. P1512_P_301 – Block B-East West Section
- Drawing ref. P1512_P_305 – Courtyard Block-North East Elevation

3 INITIAL TREE SURVEY

3.1 **Site visit:** A site visit was carried out on 28th January 2017. The weather conditions at the time were light cloud but dry. The visibility was adequate for visual tree inspection from ground level. The initial survey assessed the trees in the context of the existing land use, not in consideration of development proposals.

3.2 **Tree information:** The following information was recorded in the Tree Survey Schedule for each tree:

- Tree reference number.
- Species (common and scientific name).
- Overall tree height (m).
- Stem diameter (mm) per stem or average diameter for trees with 6 or more stems.
- Branch spread (m) measured to the four cardinal points.
- Existing height (m) above ground level of lowest significant branch and direction of growth (for individual trees only).
- Existing height (m) above ground level of canopy.
- Age class (young, semi mature, early mature, mature, over mature or veteran).
- Physiological condition (good, fair, poor).
- Structural condition (good, fair, poor).
- Comments (general description of tree including any notable features).
- Preliminary management recommendations (prescriptions for tree management processes based on the current land use and not related to the proposed development).
- Tree categorisation (see below).
- Root protection area (m^2).
- Root protection radius (m).

3.3 **Tree categorisation:** Each tree or tree group has been awarded either category A, B, C or U and a sub category of either 1,2 or 3 or a combination of the sub categories.

3.4 Tree categorisation summary:

- A – Trees of good condition or high value, with a predicted life span in excess of forty years.
- B – Trees of moderate condition or value, with a predicted life span in excess of twenty years.
- C – Trees of poor condition or low value, with a predicted life span in excess of ten years.
- U – Trees of such impaired condition that they cannot realistically be retained as living trees in the context of the current land use for more than ten years.

3.5 Tree sub categorisation summary:

- 1 – Trees have mainly arboricultural value, e.g. trees of good condition, form and vitality or rare tree species.
- 2 – Trees have mainly landscape value, e.g. trees of landscape prominence, that serve to screen unsightly views or that are required for privacy.
- 3 – Trees with mainly cultural value including conservation, e.g. commemorative trees, trees of historical significance, trees of ecological significance or veteran trees.

3.6 Each tree can only be categorised as A, B or C but may comply with more than one sub category. A cascade chart further explaining how tree categorisation is decided is included in Appendix 3.

3.7 **Root protection areas:** Each tree's stem diameter was recorded, and applied to the formula found in Appendix 4 to establish its root protection area. A root protection area represents a calculation of the minimum area of root growth required to support the tree, not the total rooting area.

3.8 The root protection areas are plotted onto the Tree Constraints Plan in Appendix 1, and recorded in the Tree Survey Schedule in Appendix 2. These are represented as a circle on the plan (unless significant rooting constraints are present), and are colour coded depending on the category the tree has been awarded. Where existing site conditions/features are present that are deemed likely to have affected the root morphology, the root protection areas have represented as a polygon of equivalent size.

3.9 The disturbance of a tree's root system can result in crown dieback and even death of the tree. Roots are used to support the tree structurally and act as transport for water and nutrients. Direct damage such as root severance can lead to ill health, as can compaction of the soil by construction traffic, heavy plant and storage of materials. Changing the nature of the surface above the growing medium, (i.e. from porous to non-porous), can alter the resources available to the tree, which in turn can lead to its decline.

3.10 The root protection areas must be left free from excavation and disturbance, and protected from compaction or contamination during any proposed works. The majority of root growth is usually found within the top meter of soil. As such, even shallow disturbance within root protection areas can potentially have a significant impact on the trees.

3.11 **Limitations of site visit:** The survey methodology was restricted to a visual tree assessment from ground level. No tree climbing or ground investigation was carried out for this report. Where existing site constraints are present such as ivy covered trees, a very dense under-storey, or where trees are located on third party land to which access was not granted, tree dimensions were estimated by eye as accurately as possible.

3.12 **Site layout:** There are no existing trees located within the site boundary or in proximity to the site on Kilburn High Road. Trees are located in Kilburn Grange Park to the north-east.

3.13 Tree T1 is a mature yew located immediately east of the existing building. It has been be formatively pruned to have a one sided crown, leaving a gap of 1.5-2m between its stem/crown and the building. Trees T2 and T3 comprise a holly and a second yew also located within the park (adjacent to 254 Kilburn High Road). All three trees contribute visual amenity to the park. The yews have been awarded category B2 whereas the holly has been awarded category C2 as it is smaller and has shorter predicted longevity.

3.14 Further information for each tree can be viewed in the Tree Survey Schedule in Appendix 2.

3.15 **Statutory tree protection:** Camden Council's online mapping service was used on 15th May 2017 to establish restrictions to tree works at the site. None of the trees surveyed for this report were shown to be protected by a Tree Preservation Order (TPO) or Conservation Area. However the trees in the park are owned and managed by Camden Council, therefore local authority permission will be required before any tree works can be undertaken.

3.16 Financial penalties and/or criminal proceedings can result if tree works are carried out on a protected tree without consent. The entirety of the tree is protected, both above and below ground.

4 ARBORICULTURAL IMPACT ASSESSMENT

4.1 **Tree removals:** No trees require removal to facilitate the proposed development. The low mixed shrub bed located immediately adjacent to the development site will need to be removed to allow installation of scaffolding and temporary ground protection. These shrubs are owned by Camden Council so should be replaced during the soft landscaping phase of development (specification to be agreed with the local authority).

4.2 **Access facilitation pruning:** Based on the information currently available, no access facilitation is anticipated to enable the proposed demolition or construction works. T1 has already be pruned as far from the existing building as is feasible without significantly reducing its amenity value.

4.3 Any requirements for access facilitation pruning that cannot be predicted at this stage in the planning process (e.g. for contractor compound or movement of large or specialist plant machinery) shall be discussed at the pre-commencement meeting with the project arboriculturalist and agreed with the local authority arboricultural officer. No works may be carried out on protected or council owned trees without prior permission from the local authority.

4.4 **Works within root protection areas:** The new building including its footing will be located no further into Kilburn Grange Park than the existing building (as shown on drawing ref. P1512_P_301), so will avoid any encroachment into the root protection areas of the retained trees in the park. As such, use of specialist foundations for root protection are not deemed necessary (it is anticipated that the existing building footings will act as a barrier to root growth entering the existing/proposed building footprint).

4.5 NHBC guidelines on foundation depth in proximity to trees should be followed. This will be determined by a structural engineer but should be guided by information in this report and appropriate sampling to determine soil profiles at the site.

4.6 No new permanent hard surfacing will be constructed within the root protection areas of retained trees. The ground immediately next to the new building, within Kilburn Grange Park, will remain as soft landscape with small patio areas set back within the overall building footprint (see Tree Retention Plan).

4.7 **Services:** Details of the routing of services for the proposed development are not currently available. It is recommended that these be directed into the site from Kilburn High Road, and completely avoid Kilburn Grange Park.

4.8 Once details of the routing of new services become available, prior to commencement of site works, these shall be reviewed by the project arboriculturalist. The arboriculturalist shall then confirm to the local authority arboricultural officer either that no works will be carried out within root protection areas, or provide details of the methodology required to ensure the works are carried out in accordance with NJUG10 '*Guidelines for the planning, installation and maintenance of utilities in proximity to trees*' and BS5837: 2012.

4.9 **Post development arboricultural management:** Post development, tree T1 will need to be cyclically pruned to maintain adequate clearance from the proposed building. This will follow exactly the same management regimen as is already implemented. No changes to the management requirements for T2 or T3 will occur as a result of the proposed development.

4.10 **Conclusions:** Based on the above assessment, trees recommended for retention in this report can be protected during the proposed construction works and successfully integrated into the site post development.

4.11 The proposed buildings and permanent hard surfacing will be located outside the root protection areas and crown spreads of all retained trees. Provided the exclusion zones and methodologies described in the arboricultural method statement and Tree Protection Plan are followed, trees proposed for retention should not be adversely affected by the proposed development.

5 ARBORICULTURAL METHOD STATEMENT

5.1 **General requirements:** The arboricultural method statement and Tree Protection Plan shall remain on site for the duration of demolition, construction and landscaping works and be available to site operatives at all times. All operatives at the site shall be briefed about tree related factors as part of their site induction.

5.2 Any variation from the methodology described in this method statement shall be discussed with the supervising arboriculturalist and agreed with the local authority arboricultural officer.

5.3 **Initial tree works:** The existing shrub bed shown on the Tree Retention Plan shall be removed as the first stage of development, as it will need to be removed to allow installation of the site hoarding the tree protection measures.

5.4 Stumps and vegetation located within the root protection area of T1 shall cleared with controlled hand tools (e.g. stump grinder/brush cutter). Plant machinery shall not be used to scrape vegetation within the root protection area.

5.5 No bonfires shall be lit within the site or Kilburn Grange Park.

5.6 **Tree protection barriers:** The root protection areas of retained trees must be left free from disturbance, and protected from contamination or compaction during the proposed works. Protection shall comprise a combination of tree protection fencing and temporary ground protection.

5.7 Tree protection fencing shall be installed between the crown/stem of T1 and the existing building. The fencing shall either comprise Heras panels in concrete/rubber feet (pinned to the ground), affixed with metal anti-tamper clamps or other ridged and immovable construction site hoarding (at least 1.8m in height).

5.8 The fencing/site hoarding shall extend to the northern corner of the existing building as shown on the Tree Protection Plan to mark the extent of the construction exclusion zone. The distance between the building and the hoarding in areas where no trees are present shall be agreed with the local authority.

5.9 Signs shall be affixed to the tree protection fencing as shown in Appendix 5 to explain its purposes. The signs shall be affixed at a reasonable size and frequency so they are easily visible to operatives at the site.

5.10 To protect tree roots and the rooting medium located between the fencing and the building, a 1.5m strip of temporary ground protection shall be installed in the location shown on the Tree Protection Plan. The specification for the ground protection shall be a single thickness of scaffold boards (or non-slip equivalent) on a compressible layer (150mm woodchip or sharp sand but not builders sand), spread across a geotextile membrane.

5.11 The fencing/hoarding and temporary ground protection shall be installed following the initial vegetation clearance works, prior to implementation of demolition works or the ingress of construction traffic to the site. The tree protection barriers shall remain in place until the soft landscaping phase of development when all excess construction materials or plant machinery have been removed from site (unless otherwise agreed with the project arboriculturalist).

5.12 The areas highlighted yellow on the Tree Protection Plan shall be referred to as the construction exclusion zones. The following actions shall be prohibited within the construction exclusion zones:

- Vehicular access.
- Regular pedestrian access unless on suitable ground protection.
- Storage of construction materials.
- Storage or handling of harmful chemicals.
- Any change in ground level unless under supervision of project arboriculturalist.
- Construction activities including hard, permanent surfacing.

5.13 **Storage and handling of harmful chemicals:** Provision needs to be made to avoid the storage and handling of harmful chemicals in proximity to trees. Harmful chemicals include fuels, oils, builder's sand (which has a high salt content) and cement. Provision shall also be made to prevent fuelling or the handling of cement from occurring in areas proposed for further planting.

5.14 Cement mixing shall only occur where there is no potential for cement washings to leech into a root protection area (e.g. not on the temporary ground protection or on scaffolding directly above T1). A designated fuelling station for plant machinery shall be selected that is either bunded or has provision to avoid spillages leeching into a root protection area.

5.15 **Contractor facilities:** A suitable location for site cabins, contractor parking and site facilities for operatives shall be agreed with the project arboriculturalist during a pre-commencement meeting. These facilities should be located outside the root protection areas of retained trees and located so as to avoid directing any construction traffic through Kilburn Grange Park.

5.16 **Demolition of existing building:** Care must be taken when demolishing the above ground sections of the existing building to avoid any debris falling into the construction exclusion zone surrounding T1 (for both tree protection and public safety). As such, much of the demolition works adjacent to T1 will need to occur by hand.

5.17 If plant machinery with booms is used to demolish the above ground parts of the building, it must pull debris into the site, away from the tree. A designated banksman must also be utilised to spot overhanging branches that may not be visible from within the cabin of the machine. Debris must be stockpiled within the site boundary and not within any part of Kilburn Grange Park.

5.18 It is expected that roots from T1 will extend up to and along the foundation slab for the existing building. No information is currently available regarding the depth of type of foundation slab present at the site, or the type of foundation required for the new development. To significantly reduce the chances of encountering or damaging tree roots, the existing footings shall be left in situ below ground level wherever possible.

5.19 Where removal of the existing building footings adjacent to the trees is deemed unavoidable, they shall be broken up using a hydraulic breaker (or suitable plant machinery operated under the supervision of the project arboriculturalist) and carefully pulled away from the tree. If roots are revealed during this operation, the use of the machine shall cease and the works adjacent to the root continued using controlled hand tools. The root shall also be wrapped in hessian cloth or covered in a layer of topsoil to prevent desiccation or frost damage and to protect the delicate root bark. Hessian cloth shall be removed before backfilling and the roots surrounded in an area of sharp sand free from stones or other potentially injurious materials.

5.20 **Soft landscaping within root protection areas:** New soft landscaping within the root protection areas of retained trees shall occur as the final phase of development. The final specification for soft landscaping is to be confirmed but may include turfing and tree/shrub planting within root protection areas.

5.21 Where new turf is to be laid within the root protection areas of retained trees, topsoil will likely need to be imported. The existing soil may be lightly tilled by hand but use of rotavators will be prohibited. A maximum increase of 100mm of topsoil may be introduced to avoid suffocating root growth. Care must be taken to prevent soil be piled against tree buttresses or buttress roots. When soil or other materials are transported across a root protection area, scaffold board pathways must be used to prevent compaction of the rooting medium. It should be noted that even light pedestrian use could compact the soil, particularly in wet conditions.

5.22 All planting pits within root protection areas shall be individually hand excavated (no trench planting). Care must be taken to avoid severing or damaging roots with a diameter greater than 25mm.

5.23 **Arboricultural supervision:** Arboricultural supervision will be required for the following stages of development:

- A pre-commencement meeting with the contractors to clarify the tree protection methodology, to discuss the phasing of works, to mark out the locations for the tree protection barriers and to agree locations for contractor facilities. The local authority arboricultural officer shall be given reasonable notice of the pre-commencement meeting so they may attend if it is deemed necessary.
- To sign off that the tree protection barriers have been installed in the correct locations and to the agreed specification.
- To review the routing of new services and to provide guidance on best practice for installation where necessary.
- To supervise excavation required for removing existing foundations immediately adjacent to tree T1.

5.24 In addition to the above, a system and programme of onsite monitoring by the appointed arboricultural consultant should be agreed with the Local Authority Arboricultural Officer, if it is deemed necessary. The form and frequency of site monitoring shall be agreed at the pre-commencement meeting.

5.25 If significant root growth is disturbed during construction activities that are not within the scope of this report, the work shall cease until the project arboriculturalist has been consulted. Roots greater than 25mm in diameter or dense/matted fibrous roots shall be considered significant root growth. It should be remembered that whilst root protection areas are part of industry best practice, tree root growth is influenced by a number of factors and may not conform to expected ideals.

5.26 If at anytime during the construction process, damage is inadvertently caused to a tree, the project arboriculturalist shall be notified to assess the likely implications and to prescribe potential remedial measures to be implemented. Damage can be in the form of chemical or fuel spillage, mechanical damage to either the above ground parts of the tree or the roots, fire or any other unforeseen circumstance.

5.27 The supervising arboriculturalist shall be appointed by the contractor. It will be necessary for the arboriculturalist to report to the local planning authority on the outcome of the site visits as well as well as any unforeseen tree related issues.

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Date: 16th May 2017

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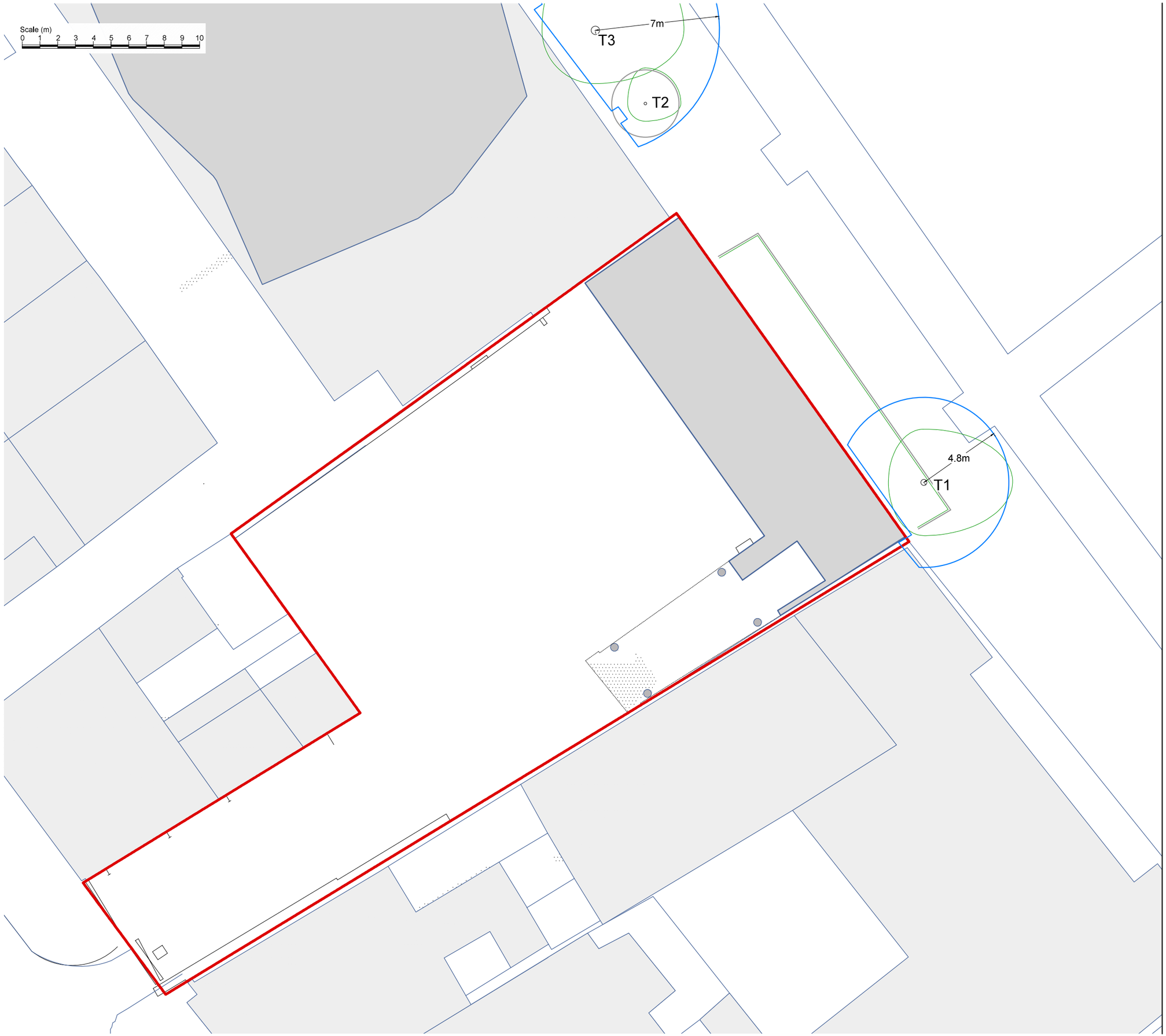
APPENDIX 1

Tree Constraints Plan, Tree Retention Plan and Tree Protection Plan



Key:

- RPA for CAT B* tree
- RPA for CAT C* tree
- Tree canopy

**** Tree categorised in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.***

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report ref. no. PJC/4437/17-01 contains further information for each tree.

This drawing should be viewed in colour.

The tree positions on this drawing are approximate and must not be scaled from.

Drawing no: PJC/4437/17/A **Rev: -** **Sheet number:** 1 of 1

Client and site:
Andmore Planning Ltd

246-248 Kilburn High Road
London
NW6 2BS

Drawing title: Tree Constraints Plan

Date drawn: 16/05/2017

Scale: 1:200 at A3

Drawn by: PD **Checked by:** NB

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Key:

- RPA for CAT B* tree
- RPA for CAT C* tree
- Tree canopy
- Extent of shrub bed to be removed

**** Tree categorised in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.***

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report ref. no. PJC/4437/17-02 contains further information for each tree.

This drawing should be viewed in colour.

The tree positions on this drawing are approximate and must not be scaled from.

Drawing no: PJC/4437/17/B **Rev: -** **Sheet number:** 1 of 1

Client and site:
Andmore Planning Ltd

246-248 Kilburn High Road
London
NW6 2BS

Drawing title: Tree Retention Plan

Date drawn: 16/05/2017

Scale: 1:200 at A3

Drawn by: PD **Checked by:** NB

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Scale (m)
0 1 2 3 4 5 6 7 8 9 10

T3
7m
T2
T1
4.8m

Site hoarding (position dependant on requirements for works access and to be agreed with local authority). All access to works area to be from within building footprint and from park.

Heras panels affixed with metal anti-tamper clamps (or alternate 1.8m high ridged and immovable fencing to be agreed with project arboriculturalist) installed 1.5m from edge of existing building.

1.5m wide strip of temporary ground protection to allow installation of scaffolding. Ground protection shall comprise single thickness of scaffold boards (or non-slip equivelant) on 150mm layer of wood chip or sharp sand, spread across a geotextile membrane.

Key:

- RPA for tree to be retained
- Canopy of tree to be retained
- Tree protection fencing
- Construction site hoarding
- Temporary ground protection
- Construction exclusion zone

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report ref. no. PJC/4437/17-02 contains further information for each tree.

This drawing should be viewed in colour.

The tree positions on this drawing are approximate and must not be scaled from.

Drawing no: PJC/4437/17/C **Rev:** - **Sheet number:** 1 of 1

Client and site:
Andmore Planning Ltd

246-248 Kilburn High Road
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NW6 2BS

Drawing title: Tree Protection Plan

Date drawn: 16/05/2017

Scale: 1:200 at A3

Drawn by: PD **Checked by:** NB

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APPENDIX 2
Tree Survey Schedule

Tree Survey Schedule

Client:	Andmore Planning
Site:	246-248 Kilburn High Road
Survey date:	28/01/2017
Surveyor:	Peter Davies

Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Management recommendation	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
T1	Yew (Taxus baccata)	8	350 estimate	N: 3 E: 5 S: 3 W: 2	2 north	Mature	Good	Good	Regularly reduced away from building.	No action required on date of survey. Protection measures to be employed during demolition/ construction works.	B2	55.4	Refer to Tree Constraints Plan
T2	Holly (Ilex x altaclerensis 'Golden King')	6	160	N: 2 E: 2 S: 1 W: 1	2 north	Semi mature	Good	Good	Unbalanced crown due to suppression, no major visible defects	No action required on date of survey. Protection measures to be employed during demolition/ construction works.	C2	11.6	1.9
T3	Yew (Taxus baccata)	7	489.9 combined stem diameter	N: 5 E: 5 S: 3 W: 3	2 east	Mature	Good	Good	Multi-stemmed form, minor bark damage on stem, canopy rubs against building	No action required on date of survey. Protection measures to be employed during demolition/ construction works.	B2	108.6	Refer to Tree Constraints Plan

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APPENDIX 3
Cascade Chart for Tree Quality Assessment

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Cascade chart for tree quality assessment

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

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APPENDIX 4
Root Protection Area Formulas

CALCULATING THE RPA

For single stemmed trees

$$\mathbf{RPA(m^2) = \frac{(stem\ diameter\ (mm)\ @\ 1.5\ m \times 12)^2 \times 3.142}{1000}}$$

For trees with two to five stems, a combined stem diameter is calculated as follows:

$$\mathbf{\sqrt{(stem\ diameter\ 1)^2 + (stem\ diameter\ 2)^2 \ldots + (stem\ diameter\ 5)^2}}$$

For trees with more than five stems, the combine stem diameter is calculated as follows:

$$\mathbf{\sqrt{(mean\ stem\ diameter)^2 \times number\ of\ stems}}$$

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APPENDIX 5
Example Protective Fencing Signs

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APPENDIX 6
Photographs

Photograph 1 – T1 (left) T2-T3 (right)

Photograph 2 – Existing clearance between T1 and building

Photograph 3 – Tree T2-T3 (adjacent building has already been demolished)

Photograph 4 – Existing shrubs to be cleared and replaced