Andrew Belson
Arboricultural Consultant

ARBORICULTURAL IMPACT ASSESSMENT

Site address:	30 Grove Place, Hampstead, London NW3 1JR
Date of report:	9th July 2024
Applicant:	Mr Fraser
Proposal:	Extensions and alterations to existing dwelling including a new basement level, installation of skylights, windows and doors and the demolition and replacement of the existing side kitchen extension with minor fenestration alterations.

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DOCUMENT HISTORY

Revision	Layout Assessed	Author	Reviewer	Date
-	31222/P/106/A; 31222/P/003	AMB	TC	09/07/2024

FILE REFERENCES:

This Report File Ref: 5394.Hampstead.Egg.AIA

Arboricultural Impact Plan: 5394.Hampstead.Egg.AIP

SUMMARY

Proposal:

It is my opinion that the proposed basement extension is supportable from an arboricultural perspective as there will be minimal effect on adjacent street trees.

The liveability in the dwelling will remain as extant.

The specific impacts of the proposal are:

- No tree removal is required or implicated
- No tree work is required.
- Protection of the retained trees has been detailed in an Arboricultural Method Statement, provided with this Assessment.
- A schedule of site monitoring and supervision will be required.

Signed:

A M Belson
RCArborA, DipArb RFS, Tech Cert (ArborA)

1 INTRODUCTION

1.1 The writer

Andrew Belson

RCArborA, DipArb RFS, Tech Cert (ArborA)

I am a Registered Consultant of the Arboricultural Association. (RC Licence No: RC202) and have worked as a consultant for over 20 years.

I hold the Arboricultural Association's Technician's Certificate and the Royal Forestry Society's Professional Diploma, which is a level 6 qualification equivalent to an Honours degree.

From a background in the Landscape and Treework industry, my experience encompasses roles as an Arboricultural Officer for a Borough Council and as a specialist contractor for a Unitary Authority, specifically handling insurance claims involving trees. I have also conducted a Tree Preservation Order Review for a Unitary Authority.

My clients include national and regional planners, architects, developers, and statutory undertakers, non-governmental organizations, local authorities, and individual householders.

I also undertake health & safety inspections; mortgage, insurance and homeowner assessments; Tree Preservation Order and Conservation Area-related work; and provide general legal and practical advice, including representation at Committee and for the purposes of Appeal.

1.2 Instructions

1.2.1 This assessment was commissioned by Egg Ltd on behalf of the Applicant because trees are a material consideration and this report is required to support a planning application.

1.2.2 The first instruction was to survey the trees on or adjoining the site in line with the recommendations of BS5837: 2012 and to provide a plan of arboricultural constraints in the first instance to inform design.

1.2.3 The second instruction was to draw a plan showing the tree constraints overlaid to the planning drawing so that the impact could be assessed, and to write an Arboricultural Impact Assessment report for the proposed development.

1.3 Project context

1.3.1 I surveyed the trees on or adjoining the site on 5th December 2024. The results of that survey are found at Appendix B.

1.3.2 The Client has received pre-planning advice which has informed the design of the proposal.

1.3.3 The Applicant intends to submit a full planning application.

1.3.4 An Arboricultural Method Statement and Tree Protection Plan has been produced and accompanies this assessment.

1.4 Source data

1.4.1 The data that have been used to inform this impact assessment comprises:

SOURCE	ANY ISSUES	CONCLUSION
TOPOGRAPHICAL SURVEY:	• A topographical survey was not available	The marked locations are adequate for the purpose of this assessment.
BS5837 TREE SURVEY	• None	I consider that the survey has been carried out in accordance with BS5837.
PROPOSED SITE PLANS: 31222/P/106/A; 31222/P/003	• None	The plan and elevation drawings are detailed and accurately illustrate the site for the purposes of the AIA.
ENGINEERING SPECIFICATIONS	• None	The principles set out are adequate for this assessment.

1.4.2 Note: This assessment is specific to the drawings listed above and cannot be generalised.

1.5 Compliance with BS5837:2012

1.5.1 This is an assessment of the elements recommended by BS5837: 2012 'Trees in relation to design, demolition and construction'.

1.5.2 Evidence of a tree survey conducted to BS5837:2012, including tree categorisation (BS5837 section 4.4 and 4.5) can be found in Appendix A (explanatory notes) and Appendix B (Survey Data Table).

1.5.3 An Arboricultural Impact Plan showing the trees and their RPAs overlaid to the proposed layout, indicating trees for retention and removal. (BS5837 section 4.5 and 4.6) can be found in Appendix C.

1.5.4 Consideration of any relevant policy, legislation or statutory protection affecting the site. (BS5837 section 5.2.3) (see section 3)

1.5.5 Throughout the report there is evidence of my assessment of the implication of the proposal and its acceptability based upon:

- The relationship between the trees and the proposed layout.
- Indicated tree losses (BS5837 section 5.2.3 and 5.4.3)
- The potential impact of RPA incursions (BS5837 section 5.3.1 and 5.3.2)
- Factors which may affect the reasonable enjoyment of the proposed structures such as shading, screening and privacy (BS5837 section 5.3.4)
- Future growth and/or pressures for removal or pruning (BS5837 section 5.3.4)
- Factors that may affect foundation design (BS5837 Annex A)
- Foreseeable issues with the planned demolition/construction of the proposed layout such as working space and access. (BS5837 section 5.4.2)

2 CONSTRAINTS

2.1 Site context

Location

2.1.1 The site is in the Hampstead area in the northwest part of London, less than a mile south of Hampstead Heath.

2.1.2 The property is accessed from Grove Place, a narrow road with permitted parking on one side.

2.1.3 Street trees are located along the edge of the kerb beside the parking bays, and there is a wide pedestrian walkway beyond.

2.1.4 The other houses on the street adjacent to No. 30 front directly onto the road.

Fig. 1 Location of site marked in red © Google Maps 2024

Overview

2.1.5 The property is part of a converted 19th Century church hall.

2.1.6 It has three storeys, with the ground floor currently comprising a garage. A Basement Impact Assessment by Croft Structural Engineers (Ref 221210/March 2023) states that the external walls extend some way below the ground floor, retaining the road.

Topography

2.1.7 The property sits on a hill sloping down from the rear. To the front, the site is generally level.

Soil and Geology

2.1.8 With reference to Figure 4.3, Volume 1 'Tree Root Damage to Buildings' (P G Biddle), some soils can have shrinkable characteristics (i.e., they are susceptible to volume changes in response to variations in moisture content).

2.1.9 Understanding the impact of trees on soil moisture content and considering the potential effects of changes in soil volume on foundations are critical for ensuring both the stability of the built environment and the preservation of retained trees. Chapter 4.2 of the National House Building Council Standards specifically addresses the requirements and considerations related to trees and shrinkable soils. It offers guidance to developers, engineers, and builders on how to assess the risks associated with trees and shrinkable soils in a development site and implement appropriate measures to mitigate these risks effectively.

2.1.10 The British Geological Survey of England and Wales identifies the bedrock geology at this location as Claygate Member - Clay, silt and sand. No superficial deposits were noted.

2.1.11 Clay soils are easily damaged through compaction and can have shrink/swell potential but the engineering of this project makes the latter factor irrelevant.

2.2 Statutory protection

2.2.1 This site lies within a Conservation Area.

2.2.2 None of the trees surveyed are included in a Tree Preservation Order.

2.2.3 Full Planning Consent would allow those works described in the supporting documentation or necessary to implement the consented development to go ahead without the need for any further notice to the Local Planning Authority as a result of the Conservation Area.

2.3 Arboricultural survey

2.3.1 I inspected two street trees situated opposite the front of the property.

2.3.2 Lime NT1 has been regularly maintained as a pollard. It is a mature tree which shows signs of distorting the highway kerbs through secondary growth of the main stem and lateral roots. Since the survey, the Lime tree has been re-pollarded.

2.3.3 Cockspur NT2 has an asymmetric crown shape due to the adjacent Lime (NT1).

2.3.4 The full table of survey data can be found in Appendix B.

3 NATIONAL AND LOCAL POLICY

3.1 Town and Country Planning Act 1990

3.1.1 Section 197 of the Town and Country Planning Act 1990 gives the local planning authority the duty to ensure that, whenever it is appropriate, planning permission for any development should include conditions that make adequate provision for the preservation or planting of trees. It also obligates the authority to make Tree Preservation Orders (dealt with in Section 198) when they are deemed necessary in connection with the granting of planning permission or to give effect to imposed Conditions.

3.1.2 In this case, it is unlikely that a Tree Preservation Order is required to achieve the protection needed, as it can be controlled through the planning process.

3.2 National Planning Policy Framework (NPPF)

3.2.1 The NPPF (updated in December 2023) contemplates the importance of trees in the context of development and sets out principles and requirements to inform planning decisions. In particular, Section 12: Achieving well-designed and beautiful places, Paragraph 136 states that “planning policies and decisions should ensure that … existing trees are retained wherever possible.”

3.2.2 This application does not implicate the loss of any trees.

3.3 Council Local Plan/ Policies

3.3.1 During the planning application process, the London Borough of Camden Council will evaluate whether the proposed development complies with the objectives and requirements set out in the Camden Local Plan 2016-2031 (adopted in 2010). The following policies are relevant to this assessment:

- A3 Biodiversity: The Council will protect, and seek to secure additional, trees and vegetation, meaning they will:
  - j. resist the loss of trees and vegetation of significant amenity, historic, cultural or ecological value including proposals which may threaten the continued wellbeing of such trees and vegetation;
  - k. require trees and vegetation which are to be retained to be satisfactorily protected during the demolition and construction phase of development in line with BS5837:2012 'Trees in relation to Design, Demolition and Construction' and positively integrated as part of the site layout;
  - l. expect replacement trees or vegetation to be provided where the loss of significant trees or vegetation or harm to the wellbeing of these trees and vegetation has been justified in the context of the proposed development;
  - m. expect developments to incorporate additional trees and vegetation wherever possible.

- A5 Basements: The council specify that basement development should avoid the loss of garden space or trees of townscape or amenity value (m). They also advise in their accompanying text that basement development should be designed to avoid damage to trees both on or adjacent to the site, including street trees and the root protection zones needed by these trees. Where there are trees on or adjacent to the site, the Council will require an arboricultural report to be submitted as part of a planning application. (para 6.140)

- D2 Heritage and A2 Open Space: The Council says that they will preserve trees and garden spaces which contribute to the character and appearance of a conservation area or which provide a setting for Camden's architectural heritage (h); and resist development which fails to preserve or is likely to damage trees on a site which make a significant contribution to the character and amenity of an area (see para 7.21).

2. Further guidance is provided in the supplementary planning document: Camden Planning Guidance: Trees (March 2019) which requires applicants to seek pre-application advice, identify tree constraints at an early stage of design, and provide the key documents and activities that are specified in BS5837:2012 Trees in relation to design, demolition and construction.

3.4 Conclusions

3.4.1 This proposal meets NPPF and the London Borough of Camden Council requirements by ensuring that the trees at this site have been a material consideration and providing evidence of a survey and implications assessment to BS5837.

3.4.2 There is also an Arboricultural Method Statement and Tree Protection Plan which accompanies this application describing how tree protection measures and construction techniques will be used to assure the protection and retention of the trees.

4 CRITERIA

4.1 Protection of root system

4.1.1 Construction activities can cause damage to the root system of a tree in several ways:

- Physical damage Excavation for construction or the digging of trenches to install underground utilities can result in root damage such as the loss of bark, splits or complete severance.

- Changes in ground levels. Elevating soil levels can lead to root death through asphyxiation. Reducing soil levels can result in the loss of the beneficial humus layer and root loss.

- Soil compaction. Heavy machinery or vehicles operating near trees can lead to soil compaction. The degree to which this is significant will depend on the soil on the site but in principle, compactions reduces or removes pore spaces in the soil structure. This in turn can lead to root death through asphyxiation. During construction, ground can be protected from damage through the use of barriers or a suitable ground protection system.

- Soil contamination. construction materials, Materials such as fuel, chemicals, lime, cement, and waste water can cause root death, either through chemical action or asphyxiation. A site must be organized in such a way to prevent damage.

- Heat. Fires can not only damage the tree above ground but the heat can also cause root death. Fires should ideally be avoided on most sites but on larger sites, it may be practical to accommodate a fire, providing it is a suitable distance from retained trees.

4.1.2 In its simplest form, the Root Protection Area (RPA) is a circle which is drawn on plans to indicate an area that is adequate for a tree's normal needs such as anchorage, moisture and nutrient absorption. It is described in British Standard 5837 as a "layout design tool" and in most cases the radius of the circle is calculated by multiplying the diameter of the main stem of the tree by 12. The shape can be adjusted to account for the possible or absolute effect of sub-surface features on the rooting environment. The Arboricultural Impact Plan (see Appendix C) shows the Root Protection Area (RPA) as a magenta circle or polygon around each tree or group of trees.

4.1.3 Trees rely on their root systems to absorb water, nutrients, and provide stability. Severe root damage can lead to decline, poor growth, or even the eventual death of the tree. The degree of damage also depends on the health of the tree, its age, the species, and the overall site conditions. The results of damage can take several years to become evident.

4.1.4 BS5837 (paragraph 5.3.1) states that the RPA is the area where, if the trees are retained, ideally no excavation should take place; the soil level should not be raised or lowered; no materials should be stacked; there must be no contamination and no services should be routed. However, trees are remarkably resilient, and some root loss can typically be tolerated in a tree of normal health and vigour.

4.1.5 An incursion into a Root Protection Area can be superficial (as with a driveway constructed over the existing ground level for example) or may involve partial or complete root loss within the area. BS5837 contemplates the possibility that there may be justification for construction within the RPA and that technical solutions can be used to mitigate the effects of an incursion. The Project Arboriculturalist is charged with demonstrating that the tree can remain viable, that the area lost to encroachment can be compensated for elsewhere, and to propose mitigation methods.

4.2 Protection of trees above ground

4.2.1 The Arboricultural Impact Plan (see Appendix C) shows the tree canopy as an indented green circle or dashed polygon which takes account of any variations in crown spread at the four cardinal points.

4.2.2 During construction, the aerial parts of the tree are at risk from potential physical damage due to contact with plant or vehicles. This can be avoided through effective site management, pruning to create sufficient space for the vehicles to pass under, or using protective barriers to create a safe distance between construction activities and tree canopies. The height of the lower crown above ground is shown in the Tree Survey Table (Appendix B).

5 IMPACT ANALYSIS

5.1 Site layout

5.1.1 The proposed basement extension requires excavation within the footprint of the existing building, which just abuts the radial extent of a circular Root Protection Area drawn around Lime NT1.

5.1.2 With an allowance for the possibility of some disturbance beyond the foundation line (but within curtilage of the property) there is the potential for an incursion of 3% (as measured on plan). Should the Root Protection Area drawn actually contain roots, a loss of 3% would be tolerable and unlikely to have any detrimental effect on the tree whatsoever.

5.2 Engineering, drainage and services

5.2.1 All changes to the location of and any addition to services can be accommodated within the building, which is already connected to all services.

5.3 Livability

Shade

5.3.1 The shade footprint that may be cast by the trees has been shown as a grey hatch on the Arboricultural Impact Plan (see Appendix C). The shade area is based on a solar inclination of 45 degrees in line with the median suggested by BS5837: 2012 that covers the main daylight hours. This simplifies the actual shade area that may affect the site, but it is considered to be a good representation of the area in question.

5.3.2 The extended dwelling would be affected by shade in the same way as extant.

5.4 Future growth and pressure to prune

5.4.1 I would not expect any significant future growth in the retained trees, which appear to be under a cyclical pruning regime.

5.5 Conservation Area/Tree Preservation Order

5.5.1 The proposal will not have any impact on the Conservation Area.

6 TREE REMOVALS AND WORKS

6.1 Tree removals

6.1.1 None required.

6.2 Pruning

6.2.1 None required.

7 CONCLUSIONS

7.1 Design

7.1.1 The proposal has been achieved through an informed design process.

7.2 Protection

7.2.1 Full details of a tree protection methodology have been provided in an Arboricultural Method Statement and Tree Protection Plan accompanying this application.

7.3 Demolition

7.3.1 The below ground demolition work involves work close to the radial extent of the Root Protection Area of adjoining trees. Therefore, the methods of demolition must be controlled through site management, and the plant, equipment and staff involved.

7.4 Construction site management

7.4.1 Space will be at a premium for the receipt, storage and handling of materials and for the movement of plant and machinery. Therefore, in order to avoid accidental damage, a suitable tree protection scheme must be implemented before development begins.

Appendices

Appendix A – Tree Survey Explanatory Notes

Identification

The two significant trees adjoining the site were surveyed in accordance with British Standard 5837.

Two street trees have been designated the prefix 'NT' and numbered. Reference to the trees' locations can be made using the plans appended to this report.

Limitations

The tree survey was carried out for the purpose of informing the planning process. Relevant structural defects and aspects of tree condition are noted in the tree survey table in Appendix B; however, a full hazard assessment has not been carried out.

As trees and shrubs are living organisms whose health and condition can change rapidly, conclusions and recommendations are only valid for one year. The health, condition and safety of trees should be checked regularly, preferably annually.

It may have been necessary to estimate some measurements when assessing trees on neighbouring land. This will not generally affect the conclusions of this report.

No invasive investigations were carried out to assess the internal condition of the trees. Should this be required, it will be highlighted in the report.

The soil was not examined and no soil samples were taken. Should soil analysis be indicated, this will be recommended in the report.

Appendix B – Tree Survey Data

Key	
Age Class	Y = Young (Less than 1/3 of normal expected life) OM = Over-mature or in decline SM = Semi-mature (1/3 – 2/3 of normal expected life) V = Veteran M = Mature
Main Stem Diameter	Measured at 1.5 metres above ground or in accordance BS5837: 2012 Annex C and D
Height	Estimated or measured with clinometer where considered critical (m)
Crown spread	At cardinal points (m)
RPA (Radius)/(Area)	Distance in metres from centre of tree to achieve a circular Root Protection Area/ Root Protection Area in square metres.
Remaining Contribution	Estimated number of years the tree may contribute in a safe condition
Category	See table overleaf for definitions

Note: This survey is an assessment of the existing site and any recommendations are preliminary and do not reflect a particular layout or proposal

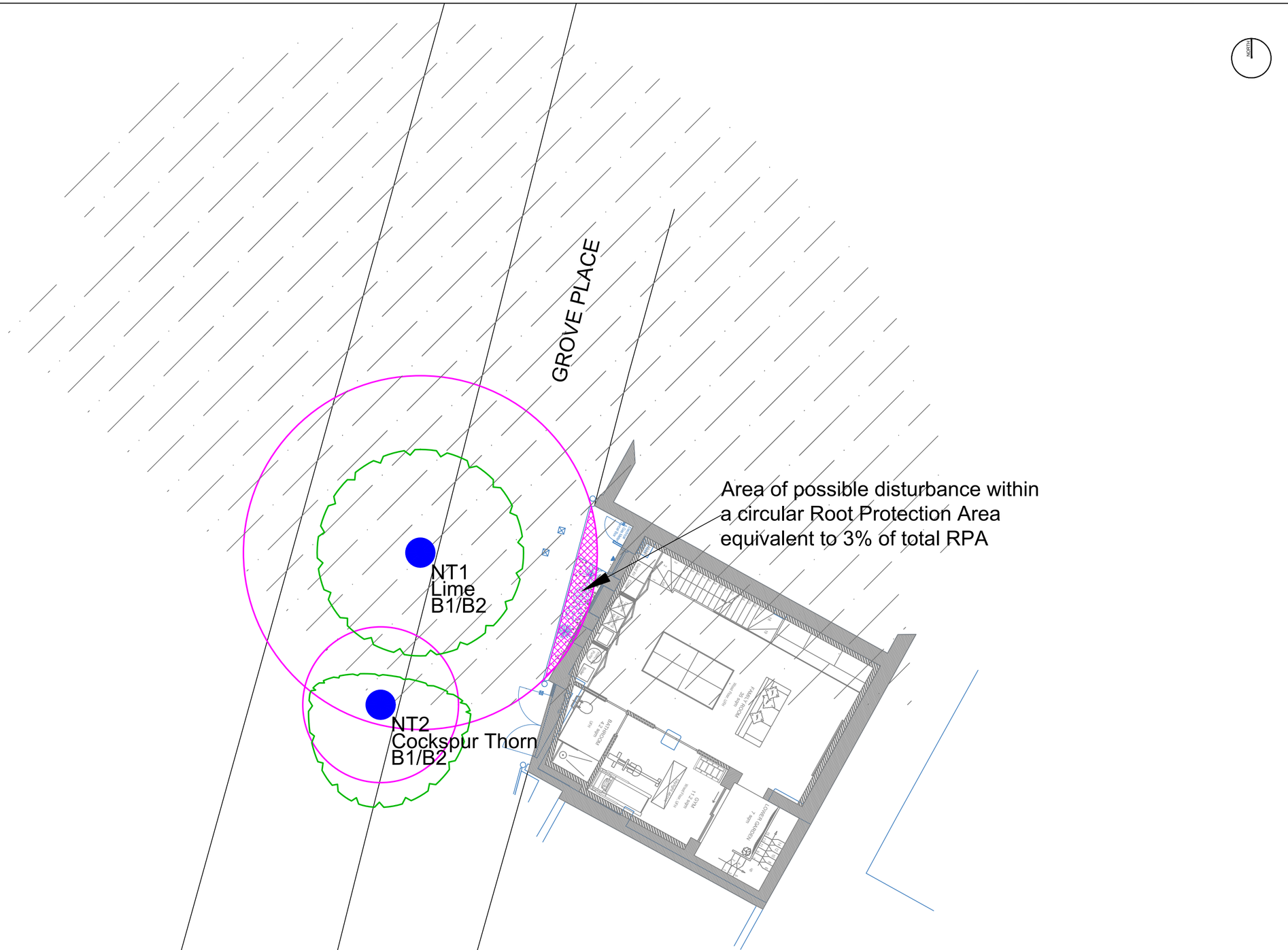
BS5837:2021 Cascade Chart for Tree Quality Assessment Trees to be considered for retention

Category and definition	Criteria (including subcategories where appropriate)			Identification on Plan
Trees unsuitable for retention				
Category U 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 NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve			
	1. Mainly arboricultural qualities	**2. Mainly landscape qualities**	**3. Mainly cultural values, including conservation**	
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)	
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for detention 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	
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	

ref.	Species	Age Class	Observations: Factors affecting the quality and value of the trees	Ø m/s (mm)	Height (m)	Lower crown height (m)	Ultimate height (m)	Crown Spread N (m)	Crown Spread S (m)	Crown Spread E (m)	Crown Spread W (m)	RPA radius (m)	RPA (m^2)	Remaining Contribution (yrs)	Category	Preliminary management recommendations
NT1	Lime	M	Street tree. Regularly maintained as pollards. Distorting highway kerbs.	500	18	3.5	18	3.5	3.5	3.5	3.5	6	113.11	40+	B1/B2	No work required.
NT2	Cockspur Thorn	M	Street tree. Crown distorted due to group pressure.	220	18	3.5	18	3	2.5	3.5	1	2.64	21.9	40+	B1/B2	No work required.

Appendix C – Arboricultural Impact Plan

1:100 Plan follows. To be printed in colour on A2.



NOTES Based on drawing 31222/P/011 Rev A and 31222/P/012 Rev A
The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

KEY

- GRADE A TREES
- GRADE B TREES
- GRADE C TREES
- GRADE U TREES
- ROOT PROTECTION AREA
- CANOPY OUTLINE
- INDICATIVE SHADE AREA
- ROOT PROTECTION AREA INCURSION

Rev	Description	Date
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Purpose of Issue
Planning

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Drawing Title
ARBORICULTURAL IMPACT PLAN

Drawn	Checked	Reviewed	Date
AMB	--	--	09/07/2024
Job No.	**Scale**	**Sheet Size**	**Revision**
5394	1:100	A2	—

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