Arboricultural Report

Assessment of trees in relation to development for planning purposes

14 Templewood Avenue
London NW3 7XA

June 2015

150531-PD-11

TIM MOYA ASSOCIATES

Project	14 Templewood Avenue, London, NW3 - TMA150531
Report Type	Arboricultural Report for Planning
Checked by	TM
Date Checked	11/06/2015

CONTENTS PAGE

1 SUMMARY REPORT

1.1 This arboricultural report has been commissioned by Nicholas Lee Architects to provide information to assist all parties involved in the planning process to make balanced judgements with regard to arboricultural features in relation to the proposed development on land at 14 Templewood Avenue, London, NW3 7XA.

1.2 The proposal is for a residential development to include a new basement level at the rear of the property and a two storey extension to the existing coach house at the front. Other modifications include alterations to the internal layout and an extension of the existing basement to the south west of the existing property.

1.3 This report includes:

- an assessment of the trees, their quality and value and constraints to development posed by these;
- the site context;
- observations on the trees;
- planning policies relevant to the consideration of the trees on the site;
- the proposed new tree planting;
- the impact of the proposed development upon the tree population in and around the site;
- methods of reducing impacts on trees; and
- Measures to be taken to protect trees during the proposed works.

1.4 My conclusions are that the proposed extension and basement level will not have any adverse impacts on retained trees within and adjacent to the site. Although some small trees at the site frontage and southern boundary will need to be removed these are insignificant and their loss can be mitigated and the landscaping enhanced with suitable new tree and shrub planting.

1.5 The main part of the development proposals are a new basement to the rear of the property which will not have any detrimental impacts on the landscape character of the Redington Conservation Area. The development proposal in respect of trees is acceptable in principle; and I have followed best practice and guidance in the assessment of trees.

2 INTRODUCTION

Instructions

2.1 My name is Gavin Rees; I am a senior arboricultural consultant dealing with trees in relation to all forms of human activity including built development. I have a National Diploma in Arboriculture as well as extensive experience as a local authority tree officer.

2.2 This report has been commissioned by Nicholas Lee Architects to support their application for the following residential development:

- ground and first floor extension to the existing coach house;
- new basement level to the rear of the property with new staircase; and
- basement extensions and internal alterations

Scope and limitations

2.3 The survey is not an assessment of health and safety of trees and no recommendations for works have been provided, however if any trees have been identified as imminently dangerous these will have been highlighted in the tree schedule where appropriate.

2.4 The contents of this report are copyright of Tim Moya Associates and may not be distributed or copied without the author's permission. Tim Moya Associates standard Limitations of Service apply to this report and all associated work relating to this site.

Background and documents provided

2.5 My report has been prepared with reference to the following supplied information:

- topographical survey (ref: ASP-001);
- architects proposed site plan (ref: 1861/ASP – 001); and
- architects proposed basement plan (ref:1861/AP – 002/02)

Methodology and guidance

2.1 I have referred to British Standard 5837: Trees in relation to design, demolition and construction (2012) which provides a methodology for the assessment of trees and other significant vegetation on development sites.

2.2 BS 5837 (2012) is intended to assist decision making with regard to existing and proposed trees and sets out the principles and procedures to be applied to achieve a harmonious relationship between trees and structures that can be sustained for the long term.

2.3 The Building Research Establishment (BRE) has also produced several documents between 1998 and 2006 in relation to trees and site layout planning, sunlight, daylight, shading and urban cooling. These documents consider trees and their relationship with buildings and garden usage, including the benefits they bring in terms of welcome shade or urban cooling, advising a balanced approach to these issues in design.

Supporting Information

2.4 All TMA documents relevant to this report are listed at section 9, and included within the Appendices.

3 OBSERVATIONS AND CONTEXT

Site visit

3.1 I visited the site on 3rd June 2015, to survey significant vegetation and identify key trees and to inform the client and architect of the main tree constraints at this site. I also had a meeting with both the architect (Nicholas Lee) and the client concerning the proposed planning application and the extent of the development proposals.

3.2 The weather at the time of my visit was warm and dry.

Present use of the site

3.3 The existing building is a 2.5 storey detached residential property with basement and includes a two storey coach house at the front. The property is accessed via the front from Templewood Avenue, the front garden area includes parking for several cars and also several sections of evergreen hedge which form a boundary with the public highway. There are also several small trees and shrubs located close to the residential boundaries to the north and south.

3.4 The rear garden contains a rose garden with surrounding formal hedging and mature trees located on all three boundaries. The property is located on a slope running from north to south, see photo 1 below.

3.5

Photo 1 (GR 3.6.15) View of property frontage

Description of the local area

3.6 The site is lies in quiet residential area with most of the surrounding properties consisting of substantial two / three storey, residential, detached properties.

3.7 To the north of the site are Grange Gardens and Birchwood Drive, these contain several apartment blocks and residential buildings of modern design and are accessed via a paved driveway from Templewood Avenue. Due to the layout and the presence of mature vegetation views of the rear garden are severely obstructed. For an aerial view of the site and local area please see photo 2 below.

Photo 2 (Google Pro) Aerial photo of the site

Trees in the local area

3.8 The wider area consists of large detached properties with garden areas to the front and back, many of these contain large trees which make a significant landscape contribution to the character of the local area. The majority of properties contain boundary planting consisting of evergreen hedging which soften the built form and help filter views into the private gardens.

3.9 Tree cover is further enhanced by street tree planting within the public footway which consists mainly of ash and horse chestnut trees and there are several recently planted trees outside the site, one of which is showing signs of decline (see photos 1, 5 and 6).

3.10 The most significant trees included as part of our survey were an off-site oak tree (T17) which, due to it large size and landscape contribution, has been assessed using BS5837 categorisation as being a high quality tree (A category) - see photo 3 below. Due to it being located within neighbouring property a detailed assessment was not possible however the base of the tree is at least 2m above the levels within

the development site. There is some evidence of previous pruning of the crown located nearest the existing property.

3.11 Trees and vegetation within the site at the front of the property are unremarkable and these areas could be enhanced by better quality replacement planting.

3.12 Several mature trees are located towards the rear of the properties on both the northern and southern boundaries and include; a Austrian pine (T3), which has been assessed as being of low quality and value (C category) and is located within the rear garden of no.12 Templewood Avenue, see photos 8 and 9 below . A group of sycamore trees are located off-site and next to the northern boundary. These provide important screening between the properties. The stems of trees within this group are located at significantly higher levels than within the site and are located at a significant distance from the proposed works.

Views of trees

Photo 3 (GR 3.6.15) View of site from Templewood Avenue, an off-site oak (T17) can be seen above the coach house

Photo 4 (GR 3.6.15) View looking down Templewood Avenue, a eucalyptus tree is visible on the right of the photo

Photo 5 (GR 3.6.15) View across the street of a current development, a mature lime tree is located at the front boundary

Photo 6 (GR 3.6.15) View into the site. An off-site ash tree (T29) is located to the right of the existing entrance

Photo 6 (GR 3.6.15) View looking up Grange Gardens, a cypress hedge (G18) and the crown of the oak tree (T17) are visible to the right of the drive

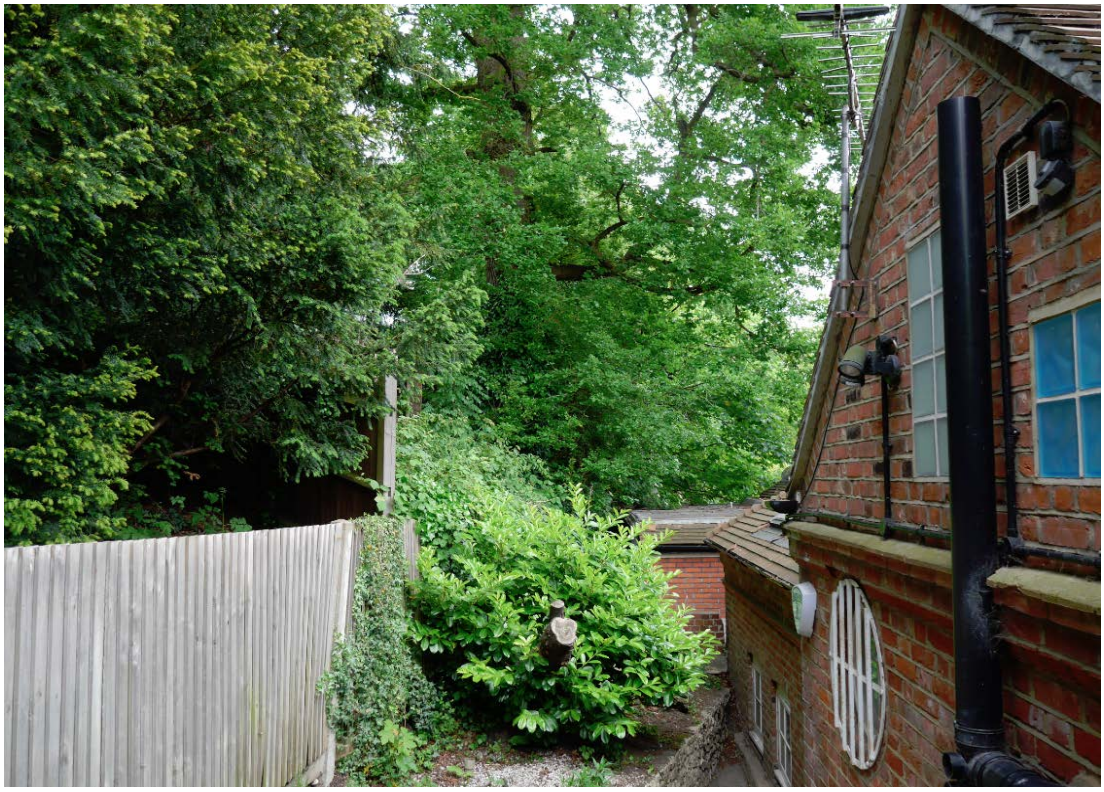


Photo 7 (GR 3.6.15) View within the site on the northern boundary which shows the level changes between the off-site oak (T17) and the main site

Photo 8 (GR 3.6.15) View at the property rear, an off-site Austrian pine (T3) is visible to the left of the photo

Photo 9 (GR 3.6.15) View of Austrian pine (T3) taken from within the site which shows the close proximity of a recent residential development to the base of the tree

Photo 10 (GR 3.6.15) View at the rear of the property showing the difference in levels and built form between existing rose garden and the off-site oak tree (T17)

Soil conditions

3.13 Soil conditions will have a significant effect upon tree growth and will influence:

- The species that will grow successfully.
- Rooting depths for different species.
- The available soil volume that can be used by roots and therefore the likely tolerance of trees and other vegetation to soil disturbance

3.14 The British Geological Survey identifies the bedrock geology as Claygate Member consisting of clay, silt and sand. Soils such as these depending on their plasticity levels will shrink and expand under the influence water absorbing vegetation. Engineering advice should therefore be sought when building on shrinkable soils close to significant vegetation.

3.15 The trees present appear to be well suited to the soil on the site and were growing well. Soils of this type will be suitable for the growth of a large number of tree species.

Policy context

3.16 Planning policy at national level is set out in the government's National Planning Policy Framework (NPPF) which came into immediate effect on 27 March 2012. The NPPF replaces the previous national planning policy documents including Planning Policy Guidance (PPGs) and Planning Policy Statements (PPSs). The NPPF is a material consideration in determining planning applications.

3.17 The NPPF sets out overarching planning policy and at its core is a presumption in favour of sustainable development. Sustainable development is defined in the NPPF as having economic, social and environmental strands that are interdependent and in these areas planning should meet the needs of the present without compromising the ability of future generations to meet their own needs.

3.18 The NPPF states that planning should be "not only about scrutiny, but instead be a creative exercise in finding ways to enhance and improve the places in which people live their lives." And should "always seek to secure high quality design and a good standard of amenity for all existing and future occupants of land and buildings;" Also that planning should contribute to conserving and enhancing the natural environment and reducing pollution."

3.19 The NPPF identifies thirteen aspects contributing to the delivery of sustainable development, including:

- establishing a strong sense of place;
- responding to local character and history; and
- providing developments that are visually attractive as a result of good architecture and appropriate landscaping

3.20 Paragraph 61 of the NPPF states "planning policies and decisions should address the connections between people and places and the integration of new development into the natural, built and historic environment."

3.21 The NPPF states that "planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland. Unless the need for, and benefits of, the development in that location clearly outweigh the loss".

London Plan 2015

3.1 Regional planning policy consists of the London Plan 2015 and associated policy documents including the Climate Change Adaptation Strategy (*Managing Risks and Increasing Resilience – October 2011*).

3.2 The London Plan 2015 defines "green infrastructure" as *"an overarching term for a number of discreet elements (parks, street trees, green roofs etc.) that go to make up a functional network of green spaces and green features."*

3.3 In relation to climate change adaptation the London Plan calls for the use of trees and other shading to *"increase green areas in the envelope of the building, including its roof and environs"*

3.4 The London Plan sets a target of a 5% increase in trees in parks, gardens and green spaces by 2025.

3.5 Policy 7.21 of the London Plan 2011 calls for trees and woodlands to be protected, maintained and enhanced. The policy requires that existing trees of value should be retained and that any loss as a result of development should be replaced in sustainable locations. The policy suggests that, where appropriate, large canopied species should be planted (rather than smaller ornamental species).

Unitary Development Plan

3.6 The Camden Unitary Development Plan adopted January 2007. Relevant policies to the consideration of trees, their setting and development include:

3.7 **Policy ENV 15 Public and Private Open Space** - Assigns similar protection to public or private open space of amenity, recreational or nature conservation value, unless the [proposed] development is essential and ancillary to maintaining or enhancing that land as valuable open space.

3.8 **Policy ENV 16 Trees and Shrub Cover** - Protects trees in conservation areas and those subject to Tree Preservation Orders and protects trees which form part of a green corridor.

Statutory Protection of trees

3.9 According to Camden Borough Council's on line mapping facility the site is located within the Redington Conservation Area and therefore trees at this site with a stem diameter of 75mm or above (measured at 1.5m above ground level) are subject to statutory protection.

3.10 I am not aware of any tree preservation orders existing on this site but prior to undertaking any tree works confirmation of this should be sort from the local authority.

4 TECHNICAL INFORMATION

Tree Data

4.1 The location of trees and groups of trees are shown on the tree survey drawing 150531-P-10 at Appendix A, this plan illustrates the location of trees and the extent of the spread of their crowns. Dimensions, comments and information for each tree are given in the tree schedule 150531-PD-10 at Appendix B.

Life stage analysis

4.2 Unlike age in numerical terms (years), this description is used to describe the physical form of a tree in relation to its typical life expectancy and varies between species; for example an oak may have a young form after 20 years while a cherry tree will be middle-aged after 20 years and will have developed the appearance of a mature tree with a spreading rounded crown whilst the oak remains tall and slender with strong apical dominance, see Fig 1 below.

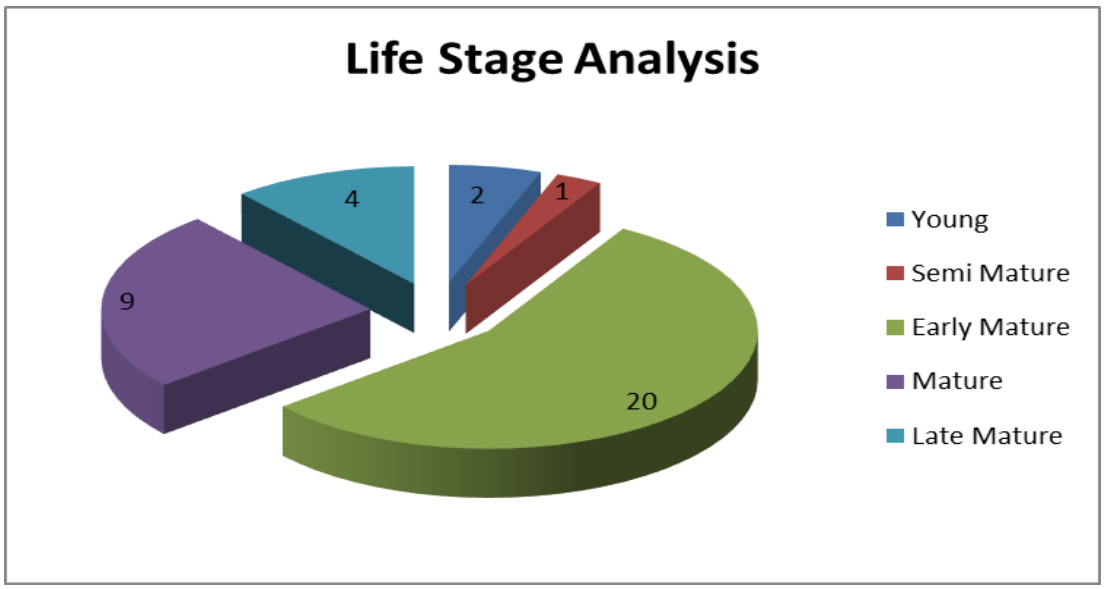


Fig 1 Pie chart showing BS5837 Life Stage Analysis

BS5837 category breakdown

4.3 Of the thirty six trees and groups surveyed as part of our survey, one tree (T17) was assessed as being of high quality and value according to the BS5837 categorisation system (A category). This was due to its prominent position, size and its high amenity contribution. Two trees (T29 and T22) were assessed as being of moderate quality and value (B category) and twenty nine trees and groups (including hedging) were assessed as being of low quality and value (C category). The remaining four survey entries were categorised as being of poor quality and value (U category), see Fig 2 below.

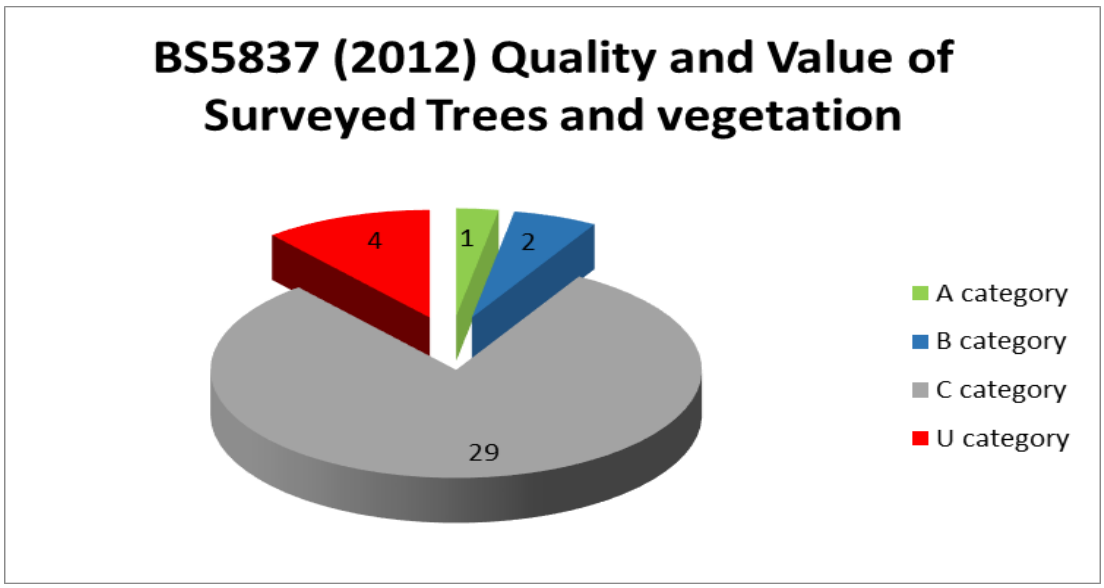


Fig 2 Pie chart showing BS5837 retention categories

5 ANALYSIS OF THE PROPOSAL IN RESPECT OF TREES

Proposed development

5.1 The layout for the proposed development is shown on plan 150531-P-11 at Appendix A and includes a new basement level at the rear of the property and a two storey extension to coach house at the front of the property. A number of other alterations are also proposed however these will not have any impact on trees and vegetation.

5.2 A list of all vegetation to be removed to facilitate the development proposals is attached at Appendix B of this report.

Coach House

5.3 The extension to the coach house will be located to the north west of the existing building. There are no trees within the site that will be impacted by the proposed extension. There are a number of off-site Leyland cypress and Yew (G18) however their roots due to existing site features and site levels are unlikely to extend as far as the proposed footprint of the extension.

5.4 The extension is at a significant distance from T17 (oak) which will not be impacted from the proposed works, see photo 3 above.

Proposed Basement Level and staircase

5.5 A new basement and stairwell is proposed at the rear of the property and will require the removal of several small trees and sections of hedging. These are insignificant and their removal will not have a negative impact on the character or appearance of the Conservation Area, see photo 10 above.

5.6 An off-site Austrian pine (T3) is located approximately 5.5m away from the area to be excavated for the basement (see photos 8 and 9 above). It was not possible to accurately measure the stem of this tree, however the root protection area (RPA) based on a visual estimation does not extend within the basement footprint. To mitigate damaging roots, the excavation will be completed using machinery located outside the RPA and will be not significantly exceed the proposed footprint. To facilitate site access and working space the RPA for T3 will be fully protected by temporary ground protection in accordance with section 6.2.3 of BS5837:2012 (see Appendix C for examples of suitable ground protection).

5.7 The RPA of T17 (oak) does not extend as far as the basement excavation and due to its elevated and off-site position (see photos 7 and 10 above) will not be impacted by the proposed development. Furthermore several existing and substantial outbuildings are located between T17 and the proposed development effectively acting as a partial root barrier.

Basement extension

5.8 The existing basement located at the south west corner of the building is proposed to be extended however this remains within the existing building footprint and will not have an impact on nearby trees.

Site access and working space

5.9 To provide access for site machinery, several small trees and shrubs will need to be removed next to the southern site boundary and includes a large Portuguese laurel (S2). Although these are partially visible from the public highway, their public amenity contribution is low and they have been assessed using BS5837 as being of low quality and value.

5.10 Several small trees and sections of hedging will need to be removed to provide working space for the proposed works, these are all unremarkable and their removal, due their small size and location at the back of the property, will not have a detrimental impact on the amenity value of the Conservation Area.

5.11 To avoid damage from high sided vehicles entering the site (near T29, see photo 6) above, vehicles should enter the site via the access at the top of the site. Alternatively the local authority will need to be contacted concerning the trimming back of lower branches from T29 where it overhangs the site access.

Other potential impacts

5.12 Excavations for underground services and drainage will need to avoid the root protection areas of retained trees or where possible existing runs should be used. If avoidance of the root protection areas is not possible, then best practice guidance for the installation of these features will need to be followed. BS5837 (2012) refers to the National Joint Utilities Group Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees. Volume 4, issue 2: NJUG, 2007 as a normative reference in these instances.

Tree Protection during construction

5.13 Drawing 150531-PD-12 at Appendix A illustrates the location of tree protection measures necessary to safely protect all retained trees during construction.

5.14 The proposed development is located outside the precautionary root protection area of all retained trees.

5.15 No materials or equipment other than those required to install tree protection, will be delivered to the site until all fencing is in place.

5.16 Signs will be fixed to every third panel stating ‘Tree Protection Area Keep Out – Any Incursion into the Protected Area Must be with the Agreement of the Local Authority or Arboricultural Consultant’.

6 DISCUSSION

General Change

6.1 The impact of the proposed development will be insignificant because of the low visibility of the proposals (the major part being underground), its compatibility with the existing building and the presence and retention of all significant trees.

6.2 No significant trees will be removed as part of the proposals and although several trees will need to be removed these are unremarkable will not have a significant impact on the landscape character or the street scene and Conservation Area. New landscaping including tree planting is proposed which will replace and enhance the loss of vegetation removed. The change in terms of visual amenity will therefore be negligible.

6.3 The type of development proposed appears to be consistent with other recent developments nearby. A nearby extension and basement has recently been constructed (on neighbouring land) less than 2m from the stem of the Austrian pine (T3). This proposal is at much more significant distance away and although marginal, is outside the RPA of this tree.

How do the changes relate to planning policy?

6.4 I have liaised with the project architect on site and carefully assessed the scope and extents of the proposed development in respect of trees. Only small and insignificant trees will be removed as part of the proposals and these will be placed by new landscaping including tree planting. All remaining trees can be safely retained subject to methods of construction. Provided there are robust conditions to control works on the site, the proposal does not conflict with Camden Borough Council's policies or the London Plan 2015.

7 CONCLUSIONS

Sustainable development

7.1 The design of the proposal has considered the potential constraints of significant trees and shrubs relevant to this development to ensure that the impact from the construction works are kept to a minimum.

7.2 Subject to finalising foundation details, methods and positions near the southern boundary (near T3) to ensure that potential root damage to the adjacent trees is kept to an absolute minimum, the proposed development in the location shown is not likely to affect the long term health of the trees.

7.3 Subject to the requirements of the development being carried out in accordance with an arboricultural method statement, including site supervision, the operations on site can be controlled to ensure that the trees are properly safeguarded during the proposed works.

7.4 As there will be no tree loss or significant impact on important trees as a result of the development, the proposal complies with the requirements of National, regional and local policies and guidance in relation to the trees and their important setting.

8 RECOMMENDATIONS

The use of planning conditions to safeguard trees

8.1 Section 197 of the Town and Country Planning Act 1990 places a duty on the Local Planning Authority to ensure that planning permissions are granted making adequate provision for the preservation and planting of trees by the imposition of conditions.

8.2 Planning conditions can require:

- A landscape plan with new tree planting in strategic locations at the site frontage.
- A detailed tree protection method statement

9 TMA SUPPORTING INFORMATION

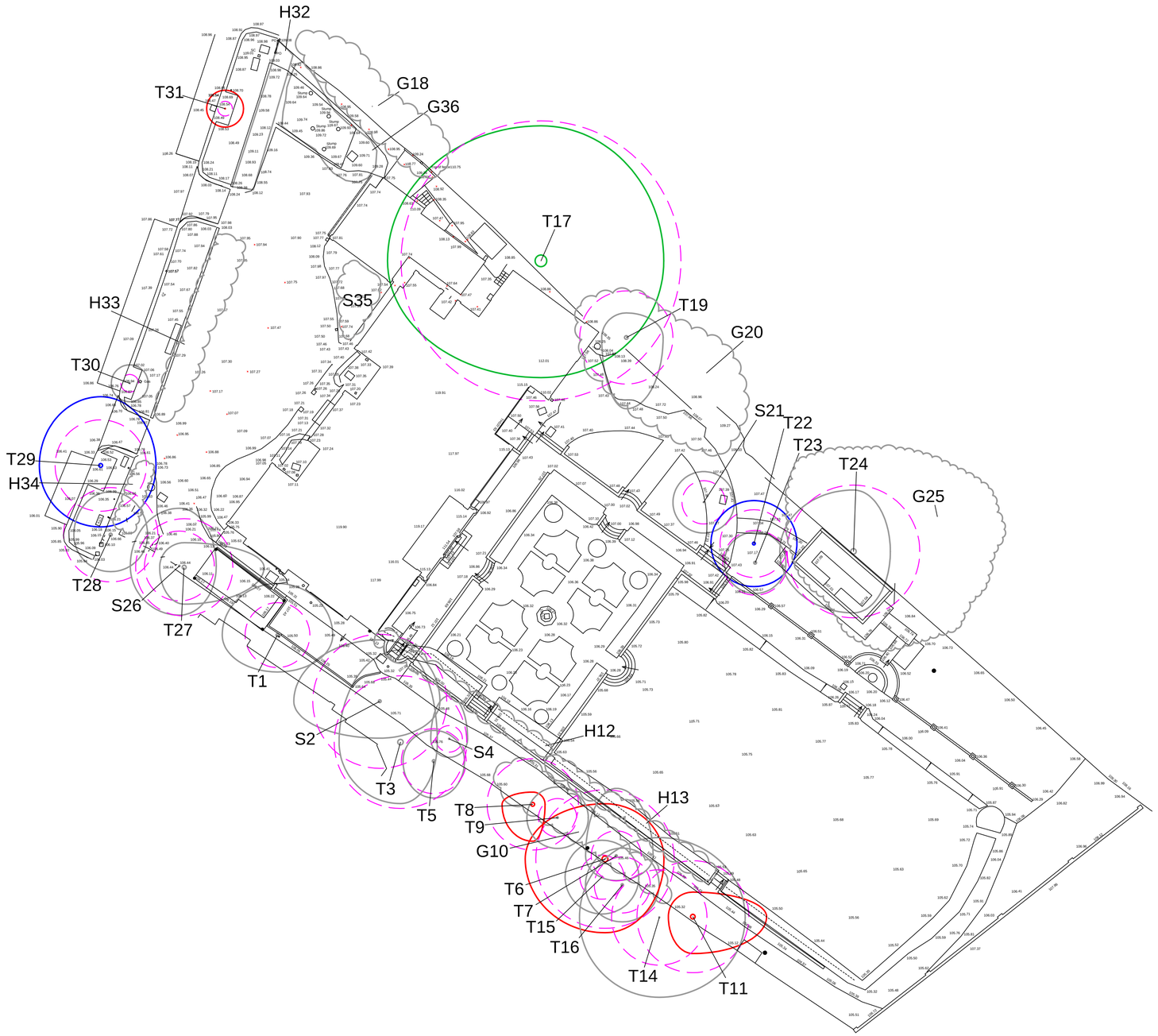
Document	Reference	Revision
Tree Schedule	150531-PD-10	
Tree Works Schedule	150531-PD-12	
Tree Survey	150531-P-10	
Proposed layout and tree removals	150531-P-11	
Tree Protection Plan	150531-P-12	
Suggested specification for ground protection		

APPENDIX A - PLANS

Tree Survey 150531-P-10

Proposed Layout and Tree removal 150531-P-11

Tree Protection Plan 150531-P-12



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INVESTORS IN PEOPLE

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BS 5837:2012 TREE RETENTION CATEGORIES

Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

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 150mm.

Category U
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer that 10 years.

BS5837 Root Protection Areas
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work

-	-	-

REVISIONS

Base Drawing

05.06.15	-	Existing site plan measured

0 1m 5m 10m 15m 20m

Title
Tree Survey

Client
Nicholas Lee Architects

Project
14 Templewood Avenue, London NW3

Date	Drawn by
June 2015	HR

Drawing No	Rev	Scale
150531-P-10	-	1:200@A1

DO NOT SCALE Use only figured dimensions

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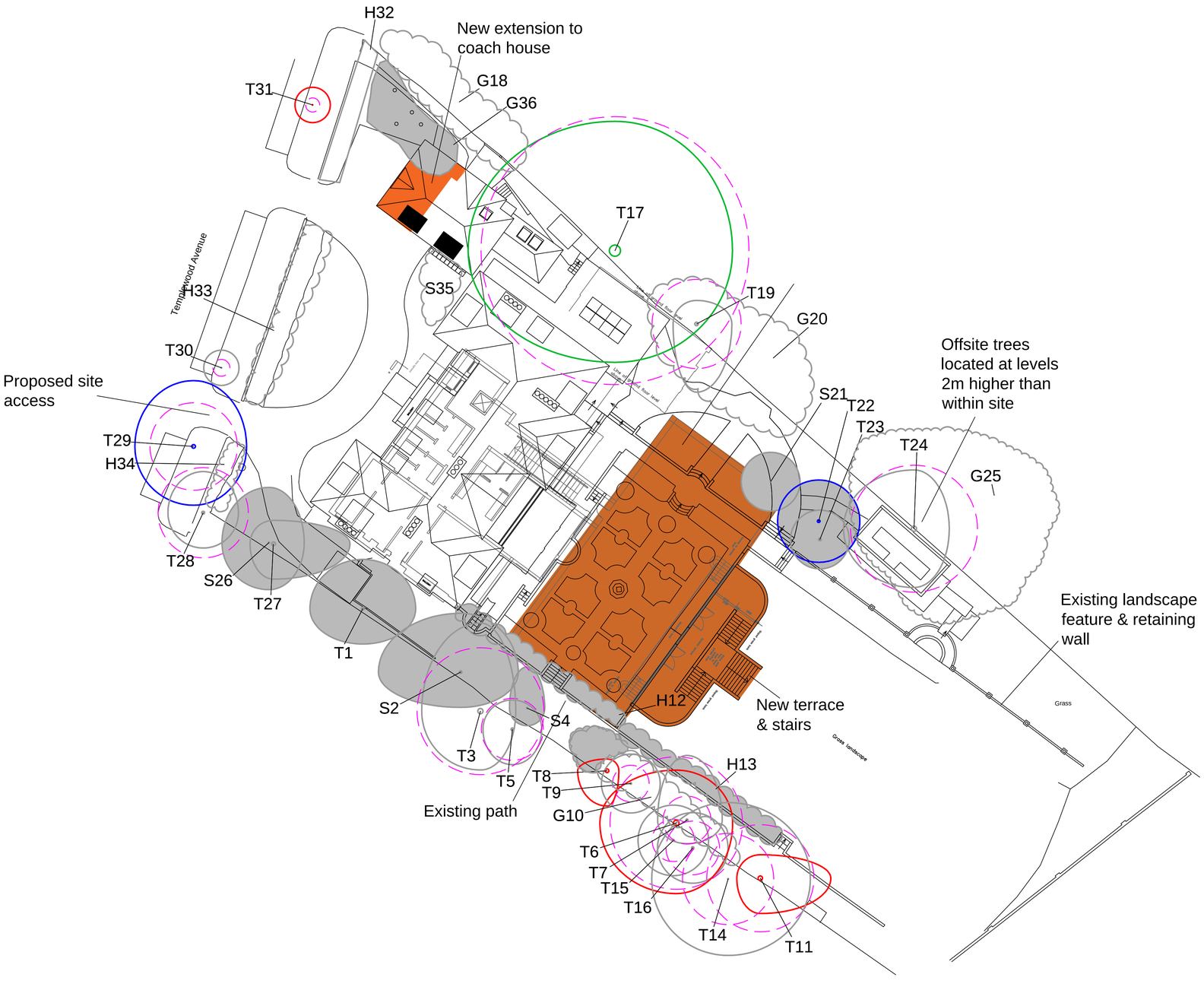

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Category U
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BS5837 Root Protection Areas
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work

Trees to be removed shown shaded

Extent of proposed development

REVISIONS		
Base Drawing		
05.06.15	-	ASP-001

0 1m 5m 10m 15m 20m

Title
Proposed Layout and Tree Removals

Client
Nicholas Lee Architects

Project
14 Templewood Avenue, London NW3

Date	Drawn by
June 2015	HR

Drawing No	Rev	Scale
150531-P-11	-	1:200@A1

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ARBORICULTURAL METHOD STATEMENT

BRITISH STANDARD 5837(2012)

This method statement is in accordance with British Standard 5837: Trees in relation to design, demolition and construction - Recommendations (2012) which provides a methodology for the assessment and protection of trees and other significant vegetation on development sites.

TREE SURGERY WORKS

Only tree works specified within this document may be carried out. Any uncertainty regarding trees to be pruned will be immediately confirmed with the arboricultural consultant and local authority tree officer.
All tree works will be carried out in accordance with the recommendations given in the current BS 3998 (2010).
All tree works should be carried out in accordance with the Wildlife and Countryside Act 1981 (as amended) and the Habitat Regulations 2010.

SITE SUPERVISION

All key / critical activities that will affect trees during construction will be inspected and monitored by the approved arboricultural consultant and reports issued to the client and local authority.

Supervision visits will occur as follows;

- Inspection of tree works, tree protection prior to demolition and construction works
- Monthly visits to inspect tree protection measures
- During works that may affect retained trees

PROTECTIVE FENCING

No materials or equipment other than those required to erect protective fencing, will be delivered to the site before the fencing is installed. The position of protective fencing for demolition is shown on this drawing.
Protective fencing will be constructed of robust barriers fit for the purpose of excluding demolition and construction traffic. Signs will be fixed to every third panel stating '**Tree Protection Area Keep Out - Any incursion into the protected area must be with the agreement of the local authority or arboricultural consultant**'.
The main contractor will inform the local authority officer and the arboricultural consultant that tree protection is in place before demolition or site clearance works commence.
No alteration, removal or repositioning of the tree protection for demolition will take place during the demolition phase without the prior consent of the arboricultural consultant.

SERVICES AND DRAINAGE

Methods of working for installation of the drainage runs or services will follow the guidance within Table 3 of BS 5837 (2012), or National Joint Utilities Group (NJUG) *Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.* Volume 4, issue 2, London NJUG 2007.
No works will occur within the tree protection zone without prior agreement from the arboricultural consultant. No machinery will be permitted within the TPZ at any time.

GENERAL PROTECTION METHODS

No fires will be permitted within 20m of the crown of any tree.

No changes in soil levels will take place within the tree protection zones without prior written consent of the local authority.
No materials, vehicles, plant or personnel will be permitted into the tree protection zones at any time without the prior consent of the arboricultural consultant.

Any liquid materials spilled on site will be immediately cleared up and removed from the site. If liquid fuel or cement products are spilled within 2m of the tree protection zone, the contractor will report the incident to the arboricultural consultant immediately.
The contractor will report any damage to trees or shrubs, whether caused by construction activities or from any other cause, to the arboricultural consultant immediately.

NO-DIG CONSTRUCTION AREAS

Areas requiring no-dig methods of construction are indicated on this drawing. No-dig will involve either excavating existing hard surfacing down to sub base and building up, or laying materials to create new hard surfacing onto existing ground levels. No scraping or reducing of existing soft ground levels in the areas indicated on this plan will be undertaken, and all construction in these areas will avoid the use of machinery.

The specification for no-dig construction is shown below.

TREE PROTECTION AREA

KEEP OUT!

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE AGREEMENT OF THE LOCAL AUTHORITY OR ARBORICULTURAL CONSULTANT

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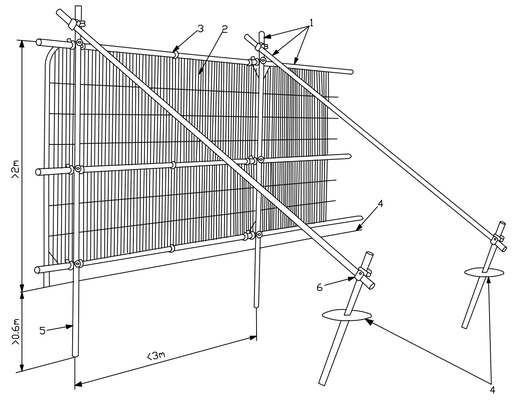
Protective Fencing Specification



Key
1 Standard scaffold poles.
2 Heavy gauge 2m tall galvanized tube and welded mesh infill panels.
3 Panels secured to upright and cross-members with wire ties.
4 Ground level.
5 Uprights driven into the ground until secure (minimum depth 0.6m).
6 Standard scaffold clamps.

N

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Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

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 150mm.

Category U
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer that 10 years.

Position of protective fencing and tree protection zones.

Area requiring temporary ground protection

Extent of proposed development

REVISIONS		
Base Drawing		
05.06.15	-	ASP-001

0 1m 5m 10m 15m 20m

Title
Tree Protection Plan

Client
Nicholas Lee Architects

Project
14 Templewood Avenue, London NW3

Date	Drawn by
June 2015	HR

Drawing No	Rev	Scale
150531-P-12	-	1:200@A1

DO NOT SCALE Use only figured dimensions

TIM MOYA ASSOCIATES
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APPENDIX B - SCHEDULES

Tree Schedule 150531-PD-10

Tree Works Schedule 150531-PD-12

14 Templewood Avenue, London, NW3

Tree/Group Number	No. of Trees	Species	DIMENSIONS Height (m)	Stem diameter (cm)	No. of Stems	Spread N (m)	Spread E (m)	Spread S (m)	Spread W (m)	Crown Cleanrance (m)	Life stage	Condition Notes	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Tree T1	1	***Acer pseudoplatanus*** Sycamore	11.0	22	1	4.2	4.5	3.0	4.5	4.0	Early Mature	Structural condition Poor. Physiological condition Fair. Decay / structural defect - Major. Foreign object - Ingrown metal. stem of tree located in raised area stem distortion and wound at 1m where stem touches wall	21.9	2.6	20-40	C2
Shrub S2	1	***Laurocerasus officinalis*** Cherry Laurel	7.5	22 AVE	5	5.0	4.9	3.0	7.0	1.5	Mature	Structural condition Poor. Physiological condition Fair. Fused stems. Leaning trunk - Minor. Multi-stemmed. Poor past pruning. crown cut back on neighbouring side	93.6	5.5	10-20	C1/C2
Tree T3	1	***Pinus nigra*** Austrian pine	13.0	45	1	7.5	3.0	5.0	5.0	4.0	Mature	Structural condition Poor. Physiological condition Poor. Leaning trunk - Minor. Unbalanced crown - Major. distorted stem at 4m, base of tree of tree less than 2m from new rear extension and basement, Unable to inspect base and lower stem as off-site stem bifurcates at 6m	91.6	5.4	20-40	C1
Shrub S4	1	***Magnolia sp.*** Magnolia sp.	4.5	9	1	3.5	1.5	1.5	1.5	0.5	Early Mature	Structural condition Fair. Physiological condition Fair. Poor past pruning. Pruning wounds - Historic.	3.7	1.1	20-40	C1
Tree T5	1	***Ilex aquifolium*** Holly	5.5	22	1	2.5	2.5	3.0	2.5	1.0	Mature	Structural condition Fair. Physiological condition Fair. Crown reduction - Recent. Unable to inspect base and lower stem as off-site	21.9	2.6	20-40	C1
Tree T6	1	***Betula pendula*** Silver birch	14.0	47	1	4.5	4.8	6.0	6.5	6.0	Late Mature	Structural condition Fair. Physiological condition Poor. Decline - Evident / observed. Decay / structural defect in crown limb / limbs - Major. Deadwood - Major. Unable to inspect base and lower stem due to ivy at base	99.9	5.6	0-10	U
Tree T7	1	***Acer pseudoplatanus*** Sycamore	8.0	17	1	5.5	3.0	2.0	2.5	2.0	Early Mature	Structural condition Poor. Physiological condition Fair. Decay / structural defect in crown limb / limbs - Localised. Leaning trunk - Minor. Suppressed crown - Major. stem bifurcates at 2m	13.1	2.0	20-40	C1
Tree T8	1	***Crataegus sp.*** Hawthorn sp.	6.0	31	1	1.0	1.0	3.0	2.5	2.0	Late Mature	Structural condition Poor. Physiological condition Poor. Decline - Evident / observed. Deadwood - Major. Decay / structural defect - Open cavity / cavities. Decay / structural defect - Principal stems. Leaning trunk - Major.	43.5	3.7	0-10	U
Tree T9	1	***Ilex aquifolium*** Holly	7.5	13	1	2.5	2.5	2.5	2.5	1.0	Semi Mature	Structural condition Fair. Physiological condition Fair. Epicormic growth - Base.	7.6	1.6	40+	C1
Group G10	4 1	***Ilex aquifolium*** Holly ***Sambucus nigra*** Elder	3.5	6						0.0	Early Mature	Structural condition Fair. Physiological condition Fair. mixed shrub group including: rose and spotted laurel			10-20	C1

Stem green estimated value

Stem AVE average stem diameter for multi-stemmed trees

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14 Templewood Avenue, London, NW3

Tree/Group Number	No. of Trees	Species	DIMENSIONS								Life stage	Condition Notes	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
			Height (m)	Stem diameter (cm)	No. of Stems	Spread N (m)	Spread E (m)	Spread S (m)	Spread W (m)	Crown Clearance (m)						
Tree T11	1	***Prunus cerasifera 'Nigra'*** Cherry plum	7.0	38	1	2.0	6.0	3.0	2.0	1.5	Late Mature	Structural condition Poor. Physiological condition Fair. Decay / structural defect - Bole. Leaning trunk - Major. Root plate movement - Recent (suspected stablilised). Unbalanced crown - Major. stem bifurcates at 1.5m	65.3	4.6	0-10	U
Hedge H12	25	***Taxus baccata*** Yew	3.0	10						0.0	Mature	Structural condition Fair. Physiological condition Fair. Hedgerow - Maintained. main section of hedge maintained at 1.5m			40+	C1
Hedge H13	35	***Taxus baccata*** Yew	1.5	6						0.0	Mature	Structural condition Fair. Physiological condition Fair. Hedgerow - Maintained.			40+	C1
Tree T14	1	***Taxus baccata*** Yew	9.5	8 AVE	4	6.5	7.0	6.5	6.5	2.0	Mature	Structural condition Fair. Physiological condition Fair. Crown reduction - Recent. Multi-stemmed. Unable to inspect base and lower stem as off-site	47.4	3.9	40+	C1/C2
Tree T15	1	***Chamaecyparis lawsoniana*** Lawson's cypress	9.0	15	1	3.0	3.0	3.0	3.0	2.0	Early Mature	Structural condition Fair. Physiological condition Fair. Crown reduction - Recent. Unable to inspect base and lower stem as off-site maintained as a high hedge	10.2	1.8	20-40	C2
Tree T16	1	***Chamaecyparis lawsoniana*** Lawson's cypress	9.0	19	1	3.0	3.0	3.0	3.0	2.0	Early Mature	Structural condition Fair. Physiological condition Fair. Crown reduction - Recent. Decay / structural defect - Bole. Unable to inspect base and lower stem as off-site maintained as a high hedge	16.3	2.3	20-40	C2
Tree T17	1	***Quercus robur*** English oak	22.0	95	1	11.0	10.0	9.5	12.5	6.0	Late Mature	Structural condition Fair. Physiological condition Fair. Arboricultural work - Historic. Deadwood - Major. Deadwood - Minor. Unable to inspect base and lower stem as off-site and covered in ivy. Base of tree located approxmately 2m above levels within the development site. A substantial side extension is situated between the stem base and the proposed basement. Area north of the tree is used as a garden / access road for recent residential development.	408.3	11.4	40+	A2
Group G18	25 3	***Cupressocyparis leylandii*** Leyland cypress ***Taxus baccata*** Yew	9.0	25						1.5	Early Mature	Structural condition Fair. Physiological condition Fair. Hedgerow - Neglected / overgrown.			20-40	C2
Tree T19	1	***Acer pseudoplatanus*** Sycamore	8.5	30 AVE	2	2.0	3.0	5.8	2.0	2.0	Early Mature	Structural condition Poor. Physiological condition Fair. Arboricultural work - Recent. Decay / structural defect - Open cavity / cavities. Poor past pruning. Pruning wounds - Historic. Unbalanced crown - Major. Unable to inspect base and lower stem as off-site. Significant level change between level at tree base and proposed development, tree base approx. 2m higher	45.2	3.8	20-40	C1/C2

Stem green estimated value

Stem AVE average stem diameter for multi-stemmed trees

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14 Templewood Avenue, London, NW3

Tree/Group Number	No. of Trees	Species	DIMENSIONS Height (m)	Stem diameter (cm)	No. of Stems	Spread N (m)	Spread E (m)	Spread S (m)	Spread W (m)	Crown Clearance (m)	Life stage	Condition Notes	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
Group G20	11	***Ilex aquifolium*** Holly	10.0	25						1.5	Early Mature	Structural condition Fair. Physiological condition Fair. Arboricultural work - Historic. Poor past pruning. Height, spread and diameter estimated average for group Unable to closely inspect base of trees due to inaccessability and the fact that trees are located off-site Base of stems significantly higher than in development site, approx 1.5-2m			20-40	C1/C2
	4	***Acer pseudoplatanus*** Sycamore														
	1	***Aesculus hippocastanum*** Horse chestnut														
Shrub S21	1	***Ligustrum sp.***	3.0	6 AVE	6	2.5	2.5	2.5	2.5	0.0	Early Mature	Structural condition Fair. Physiological condition Fair. Multi-stemmed.	9.8	1.8	20-40	C1
Tree T22	1	***Abies sp.*** Fir	11.0	23	1	3.5	3.5	3.5	3.5	1.0	Early Mature	Structural condition Fair. Physiological condition Fair. Arboricultural work - Recent. base of tree located in raised bed	23.9	2.8	40+	B1
Tree T23	1	***Juniperus chinensis*** Chinese juniper	8.0	22	1	2.5	2.5	2.5	2.5	1.0	Early Mature	Structural condition Fair. Physiological condition Fair. Suppressed crown - Minor. base of tree located in raised bed	21.9	2.6	40+	C1
Tree T24	1	***Acer pseudoplatanus*** Sycamore	16.0	45	1	5.0	3.0	5.0	6.0	5.0	Mature	Structural condition Fair. Physiological condition Fair. Unable to inspect base and lower stem as off-site and covered in ivy, tree stem approx 2m higher than levels in site,	91.6	5.4	20-40	C1
Tree T25	4	***Acer pseudoplatanus*** Sycamore	16.0	45						5.0	Mature	Structural condition Fair. Physiological condition Fair. Off-site trees, due to inaccessibility unable to inspect base of trees and lower stems. Stem bases are approx. 2m above ground level in site			20-40	C1/C2
Shrub S26	1	***Sambucus nigra*** Elder	7.0	11 AVE	2	4.7	3.0	4.0	4.0	1.5	Early Mature	Structural condition Fair. Physiological condition Fair. Multi-stemmed. Unbalanced crown - Minor.	25.4	2.8	10-20	C1
Tree T27	1	***Acer negundo*** Box elder	11.0	33	1	2.0	6.5	3.0	2.0	4.0	Mature	Structural condition Poor. Physiological condition Fair. Decay / structural defect - Open cavity / cavities. Poor past pruning. Root damage - Suspected. Unbalanced crown - Major. suspect that crown and roots on neighbouring side were pruned back to facilitate recent development Unable to inspect base and lower stem due to ivy and neighbouring fence	49.3	4.0	10-20	C1/C2
Tree T28	1	***Ilex aquifolium*** Holly	8.0	25 AVE	2	3.5	3.0	3.0	3.0	1.5	Early Mature	Structural condition Fair. Physiological condition Fair. Twin-stemmed. Unable to inspect base and lower stem due to dense vegetation at base, located within hedge	46.4	3.8	20-40	C1/C2
Tree T29	1	***Fraxinus sp.*** Ash sp.	12.0	31	1	5.6	4.5	5.0	5.0	3.5	Early Mature	Structural condition Fair. Physiological condition Fair. 3.5m clearance above access drive, vehicle damage roadside at 4m on main stem	43.5	3.7	20-40	B2

Stem green estimated value

Stem AVE average stem diameter for multi-stemmed trees

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14 Templewood Avenue, London, NW3

Tree/Group Number	No. of Trees	Species	DIMENSIONS								Life stage	Condition Notes	RPA (m^2)	RPR (m)	Life expectancy (yrs)	BS Category
			Height (m)	Stem diameter (cm)	No. of Stems	Spread N (m)	Spread E (m)	Spread S (m)	Spread W (m)	Crown Clearance (m)						
Tree T30	1	***Fraxinus sp.*** Ash sp.	3.0	6	1	1.5	1.5	1.5	1.5	1.5	Young	Structural condition Fair. Physiological condition Fair.	1.6	0.7	40+	C1
Tree T31	1	***Fraxinus sp.*** Ash sp.	3.0	5	1	1.5	1.5	1.5	1.5	1.5	Young	Structural condition Fair. Physiological condition Poor. Decline - Evident / observed.	1.1	0.6	0-10	U
Hedge H32	15	***Ligustrum vulgare***	1.5	4						0.0	Early Mature	Structural condition Fair. Physiological condition Fair. Hedgerow - Maintained.			20-40	C2
Hedge H33	20	***Ligustrum vulgare***	1.5	4						0.0	Early Mature	Structural condition Fair. Physiological condition Fair. Hedgerow - Maintained.			20-40	C2
Hedge H34	5	***Ligustrum vulgare***	1.5	4						0.0	Early Mature	Structural condition Fair. Physiological condition Fair. Hedgerow - Maintained.			20-40	C2
Shrub S35	1	***Azalea sp.***	2.0	5						0.0	Early Mature	Structural condition Fair. Physiological condition Fair. mixed evergreen shrubs including Choisya ternata			10-20	C2
	1	***Laurocerasus officinalis*** Cherry Laurel														
Group G36	4	***Ilex aquifolium*** Holly	1.6	8						0.0	Early Mature	Structural condition Fair. Physiological condition Fair. mainly mixed evergreen shrubs in 1.5m raised bed			10-20	C1
	1	***Taxus baccata*** Yew														
	1	***Sambucus sp.*** Elder sp.														
	1	***Laurocerasus officinalis*** Cherry Laurel														

Stem green estimated value

Stem AVE average stem diameter for multi-stemmed trees

The survey information in this schedule has been gathered following a BS5837 survey for planning purposes. Where hazardous trees have been noted recommendations for works may have been made but this survey cannot be relied upon as a full health and safety assessment of the trees.

Table 1 of BS5837 (2012) **Cascade chart for tree quality assessment**

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see note)				
Category U 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	* 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 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; see 4.5.7*			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	Tree 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 arboricutural 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 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 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

Tree works schedule

14 Templewood Avenue, London, NW3

ID No.	Count	Species	BS5837 Category	Recommended works
To facilitate development				
1	1	Acer pseudoplatanus Sycamore	C2	Fell - Ground level. .
2	1	Laurocerasus officinalis Cherry Laurel	C1/C2	Fell - Ground level. .
4	1	Magnolia sp. Magnolia sp.	C1	Fell - Ground level. .
10	4	Ilex aquifolium Holly	C1	Fell - Ground level. (Partial fell) Please see TMA plan for extents to be removed..
	1	Sambucus nigra Elder		
12	25	Taxus baccata Yew	C1	Fell - Ground level. .
13	35	Taxus baccata Yew	C1	Fell - Ground level. .
21	1	Ligustrum sp.	C1	Fell - Ground level. .
22	1	Abies sp. Fir	B1	Fell - Ground level. .
23	1	Juniperus chinensis Chinese juniper	C1	Fell - Ground level. .
26	1	Sambucus nigra Elder	C1	Fell - Ground level. .
27	1	Acer negundo Box elder	C1/C2	Fell - Ground level. .
36	4	Ilex aquifolium Holly	C1	Fell - Ground level. .
	1	Laurocerasus officinalis Cherry Laurel		
	1	Sambucus sp. Elder sp.		
	1	Taxus baccata Yew		

Tree work analysis (trees and trees in groups)

	To facilitate development	Total
Fell - Ground level	12	12
Total	12	12

APPENDIX C – GROUND PROTECTION

Suggested specification for Temporary Ground Protection

Examples of Temporary Ground Protection to be used within Root Protection Areas.

To comply with the recommendations contained within BS5837 (2012); section 6.2.3.3, new temporary ground protection might be separated into three categories dependent on intended site traffic and needs to be capable of supporting traffic type without being distorted or causing compaction of underlying soil.

As per BS5837 (2012), the locations of and design for temporary ground protection is shown on TMA tree protection plan at Appendix A. In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

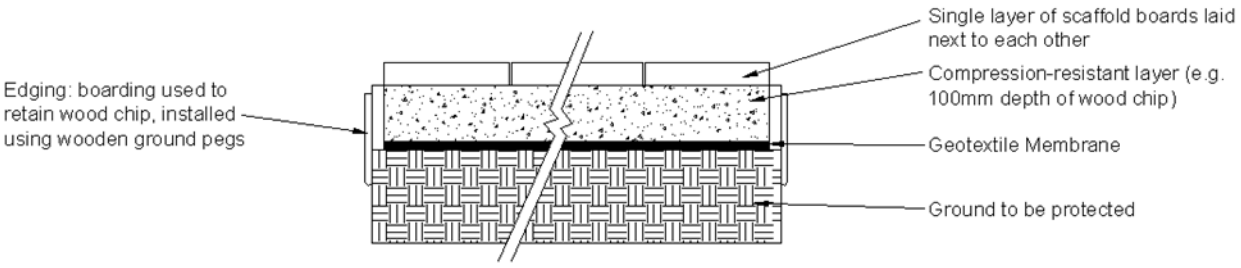
The following examples are not intended to be used as a specification and engineering advice should be sought as the specification for temporary ground protection will need to reflect both site traffic and site conditions.

Category A (Pedestrian Movements)

(BS5837:2012); 6.2.3.3(a):

For pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100mm depth of woodchip), laid onto a geotextile membrane (see example A below).

Example A

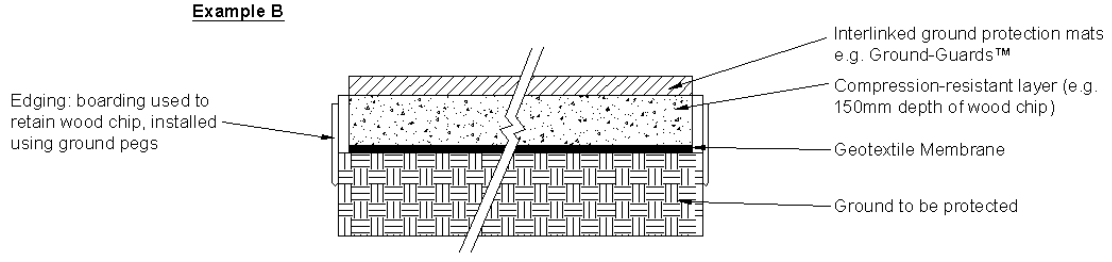


Category B (Pedestrian - operated plant <2m tonnes)

(BS5837:2012); 6.2.3.3(b):

For pedestrian-operated plant up to a gross weight of 2 tonnes, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150mm depth of woodchip), laid onto a geotextile membrane (see example B below).

Example B



Category C (Wheeled or trucked construction traffic >2m tonnes)

(BS5837:2012); 6.2.3.3(c):

For wheeled or tracked construction traffic exceeding 2 tonne gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected. Examples can include three dimensional cellular confinement systems such as: Infra Green InfraWeb http://infragreen-solutions.com (see photos 1 & 2 below) or interlocking ground panels such as GreenTek Ground-Guards http://www.ground-guards.co.uk (see photo 3 below).

Option 1 (Cellular Confinement System)

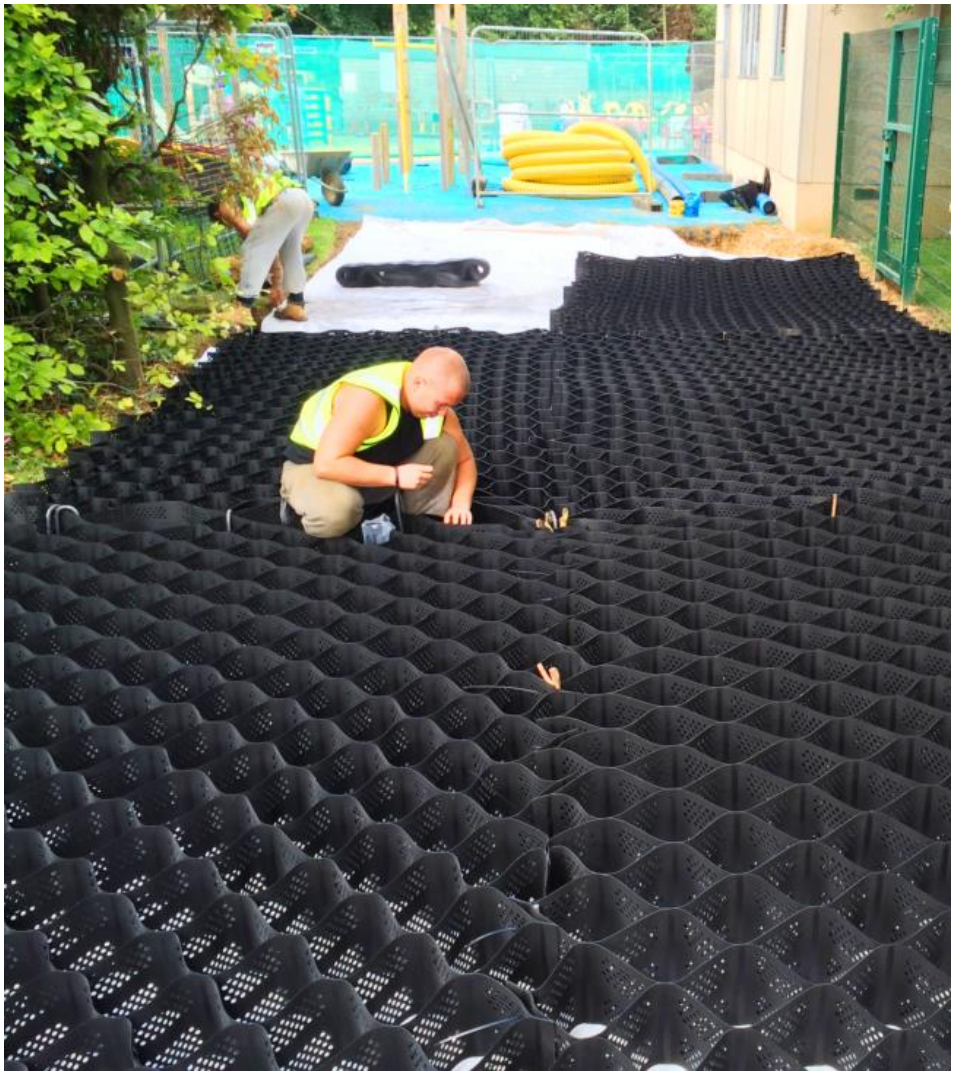


Photo 1 (Infra Green) - installation of Infra Green InfraWeb

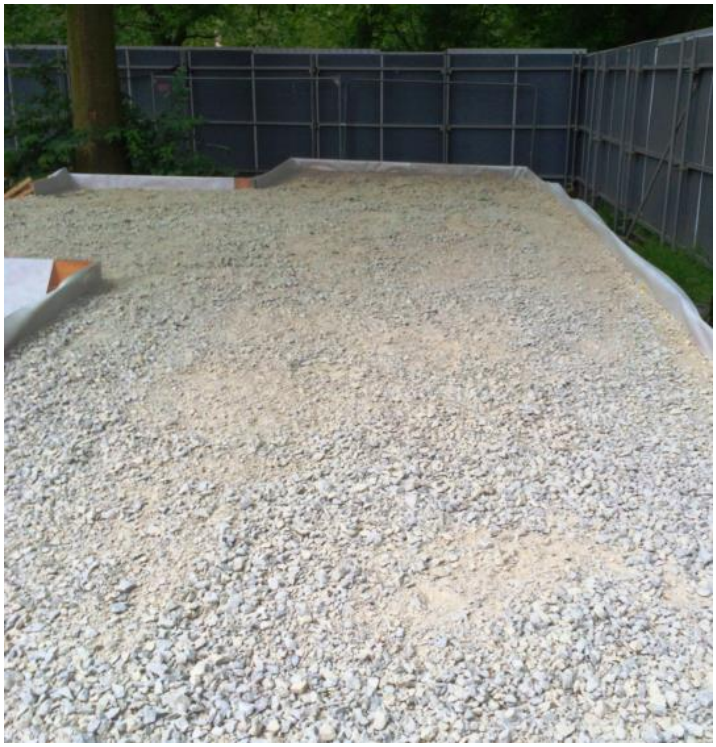


Photo 2 (Infra Green) – finished temporary ground protection InfraWeb

Option 2 (interlocking ground panels)

Photo 3 (Green Tek) - Ground-Guards, installed using a geotextile membrane, ground panels, 150mm deep woodchip and ground panels on top and held in place with edge rails

- Feasibility Tree Surveys
- British Standard 5837 Tree Surveys
- Tree Constraints Reports & Drawings
- Appeal Statements & Proofs
- Expert Witness
- Evidence at Hearings & Public Inquiries
- Method Statements to Satisfy Planning Conditions
- Design Solutions
- Landscape Plans
- Tender Documents & Drawings
- Supervision & Inspection of Works
- Contract & Project Management
- Health & Safety Surveys
- GPS Surveys
- Computerised Tree Population Surveys
- CAD Plans & Consultancy
- Subsidence Risk Assessments
- Mortgage & Insurance Reports
- TPO Review
- Local Government Officer Contracts
- Arboricultural & Ecological Reports for Planning
- Habitat Surveys (Extended Phase 1/ Walkover/ Botanical)
- Protected Species Surveys
- Ecological Mitigation & Licencing
- BREEAM & CFSH
- Ecological Management Plans
- Hedgerow Surveys
- Landscape Analysis

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