Part 1: BS: 5837 Tree Survey & Tree Constraints Plan Report

Site:

Sproughton
22 Courtenay Avenue
London
N6 4LP

Date of Site Visit:

18th August 2021

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GD/210557/R1

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1.0 EXECUTIVE SUMMARY:

1.0.1 The following report evaluates the trees within and adjacent to the above site, using the criteria and guidance set out in the British Standard 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*.

1.0.2 The wider amenity and landscape values of the trees, as well as their useful life expectancies are determined, and as a result, a category grading is assigned to all trees for retention using the "Cascade Chart for Tree Quality Assessment".

1.0.3 A Tree Constraints Plan has also been drawn and appended to the report. The Plan illustrates the tree locations, their above and below ground constraints and their above ground spatial requirements with any proposed development

1.0.4 Sproughton is located to the end of Courtenay Avenue, a private, gated road off Hampstead lane in the heart of Kenwood, close to The Bishops Avenue and Hampstead Heath. The surrounding properties are residential and of similar size however comprise a mixture of period and new builds.

1.0.5 The existing building is located centrally within large mature gardens and bordered to the north, south and west by neighbouring properties. The eastern boundary adjoins the neighbouring Highgate Golf Course.

1.1 Table 1: BS: 5837 (2012) Tree Quality Assessment

BS: 5837 (2012) Category	Number
A	0
B	32
C	43
U	10
Total	85

2.0 SCOPE OF REPORT

2.1 Instruction

2.1.0 Bartlett Consulting has been instructed to undertake a tree survey in accordance with British Standard 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*, for the trees and vegetation within the boundary of Sproughton, 22 Courtenay Avenue, London, N6 4LP, that have the potential to influence a proposed development, which therefore must be considered as a constraint within the project planning.

2.2 Documents & Supporting Information

2.2.0 Bartlett Consulting was provided with the following documentation and plans prior to the site visit & tree survey. They were sent via email in both PDF and DWG file format:

- Topographical Survey Ref No: 2035_01 Dated 03.07.2021
- Draft E_Landscape Analysis Ref: 07340.009.811 Dated 8.10.2021
- Draft F_Landscape Drainage Ref: 07340.009.811 Dated 8.10.2021

2.3 Aspects Included within Report

2.3.0 The tree survey included within this report follows the guidance of Clause 4 of British Standard 5837: *Trees in Relation to Design, Demolition and Construction – Recommendations*. The tree survey schedule, included within Appendix 3, details: tree common name; various physical dimensions; notable observations; tree categorisation with respect to their landscape/cultural value and perceived life expectancy.

2.3.1 The tree survey has been conducted in accordance with the principals of the Visual Tree Assessment (VTA) method developed by Mattheck & Breloer (1994). This is a basic visual tree assessment and must not be misinterpreted as a detailed/advanced tree condition inspection or tree risk assessment.

2.3.2 Any prescribed tree works are made with regards to good tree management, irrespective of any proposed development. Management recommendations may also be made in response to a pathogen or pest of known contagion which may pose a concern to people or other trees.

2.3.3 This report is accompanied by a Tree Constraints Plan (TCP) accurately detailing the positions of surveyed trees and vegetation; illustrating the physical dimensions of the crowns as per the cardinal points; the calculated Root Protection Area (RPA) of each tree; and tree shade/shadow patterns.

2.3.4 Modified RPA's will be illustrated if known, below ground level obstructions exist.

2.3.5 Future canopy spread for young trees will also be illustrated where necessary.

2.4 Aspects Excluded from Report

2.4.0 The prescribed tree works contained within this report do not take into consideration possible facilitation pruning. This report does not include an Arboricultural Impact Assessment (AIA), Arboricultural Method Statement (AMS), or a Tree Protection Plan (TPP).

2.4.1 The contents of this report do not include discussions regarding subsidence and/or heave as a result of retention or tree removal, nor does this report consider the water demands of trees present to determine foundation design and depth. If required, this can be provided on request.

3.0 TREE PRESERVATION ORDER & CONSERVATION AREA PROTECTION STATUS

3.1 Statutory Protection

3.1.0 The Town & Country Planning Act (Tree Preservation) (England) Regulations 2012 and the Town & Country Planning Act 1990 (as amended) provides legislative protection for trees within England. A tree protection status check was conducted by Bartlett Consulting on 19th August 2021 via accessing the London Borough of Haringey Council interactive mapping website:

3.1.1 https://www.haringey.gov.uk/environment-and-waste/nature-and-conservation/trees/tree-preservation-orders/map-tree-preservation-orders-tpos-haringey

3.2 Tree Preservation Order (TPO) Status

3.2.0 TPO/2012/1802

3.3 Conservation Area (CA) Status

3.3.0 Highgate Conservation Area Designated 21st December 1967

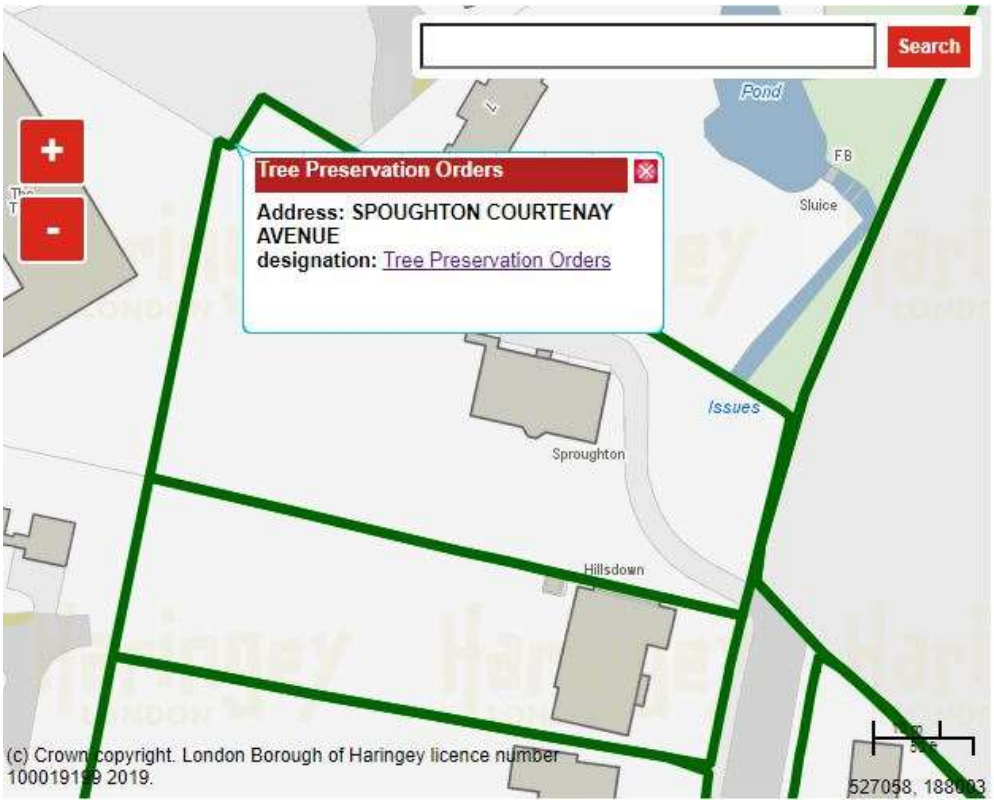

Figure 2: Screenshot Showing The Results Obtained From The London Borough of Haringey Council, With The Site Highlighted In Red.

3.0 TREE PRESERVATION ORDER & CONSERVATION AREA PROTECTION STATUS (Continued…)

3.4 Tree Management Implications

3.4.0 From current information available at time of writing all trees located within the properties of Courtenay Avenue are current subject to a Tree Preservation Order (TPO). It has also been established via the same online search that the site stands within the designated Highgate Conservation Area (CA), administered by the LPA; London Borough Haringey.

3.4.1 Under the Town and Country Planning (Tree Preservation) (England) Regulations 2012, you cannot carry out any works to a protected tree before obtaining formal written permission as issued by the appropriate Local Planning Authority.

3.4.2 If consent is granted, all prescribed tree works contained within this report may be implemented, however if refused, implementation may be sought with the submission of a Tree Preservation Order planning application (TPO1APP) but cannot be acted upon until full Local Planning Authority permission is granted.

3.4.3 Please note that the removal of dead trees and the pruning of dead wood from living trees are permitted and "excepted" works under the 2012 Regulation listed above. These works can be undertaken only after 5 working days' notice has been given to the local planning authority. .

4.0 GENERAL SITE DETAILS

4.1 Description of the Site

4.1.0 As detailed within the Executive Summary, the property of Sproughton is located to the end of Courtenay Avenue a private, gated road off Hampstead lane in the heart of Kenwood, close to The Bishops Avenue and Hampstead Heath. The surrounding properties are residential and of similar size however comprise a mixture of period and new builds.



Figure 3: Photograph Showing The Application Site As Viewed From The Main Drive Looking In A North-westerly Direction Towards The Main House

4.2 Local Landscape and Amenity Evaluation

4.2.0 The existing building is located centrally within large mature gardens and bordered to the north, south and west by neighbouring properties. The eastern boundary adjoins the neighbouring Highgate Golf Course.

4.2.1 The landscape and tree cover adjacent to the site features a diverse mixture of native deciduous and evergreen tree species. These trees are providing a significant contribution to the local sylvan landscape as well as providing a good level of effective screening between the properties.

4.2.2 The trees subject to the report are considered to have a low public visibility and amenity value, as the majority can only be viewed from within the property. A small proportion of trees are partly visible from the private and controlled access roads of Courtenay Avenue, White Lodge Close or the private Highgate Golf Course.

4.3 Previous Surveys & Site History

4.3.0 We are not aware of any other surveys being conducted on site, other than the Topographical Site Survey. Nor are we aware of any historical or cultural values relating to the trees.

5.0 GENERAL TREE DETAILS

5.1 Tree Identification & Location

5.1.0 The trees subject to this report are located within the curtilage of 22 Courtenay Avenue and within adjacent third-party land.

5.1.1 The locations of the surveyed trees are illustrated on the Tree Constraints Plan (TCP) accompanying this report.

5.1.2 The accuracy of the tree location is based upon the provided Topographical Site Survey Drawing, referenced in Section 2.2 above although some trees not included within the survey have been plotted by Bartlett Consulting with use of the Trimble Geo 7x Global Positioning System. Whilst this method does not guarantee accuracy provided by a land or topographical site survey, it is considered sufficient to allow the plotting of calculated Root Protection Areas.

5.1.3 Trees that have been plotted using this method include: G3, T5, T7, G9, G10, T12, T16, T19, T22, T23, T25, T26, T29, T30, T31, T32, T33, T38, T49, T55, T73, T74, T77, T80.

5.1.4 Where deemed appropriate to do so, based on tree species, age, size and proximity to one another, some trees have been referenced and surveyed as a group. The dimensions of the largest tree in each group have been recorded within the tree survey schedule.

5.2 Trees Included within Survey

5.2.0 Only trees that are present at the time of the site visit, with a measured stem diameter equal to or greater than 75 millimetres (at 1.5 metres above ground level) are included within the survey.

5.2.1 Where possible to do so, all trees on adjacent third-party land which are located within influencing distance of the site will be recorded. As there was no access to the third-party land, stem diameters have been estimated, unless it was possible to measure the stem diameter with a measuring tape.

5.2.2 Tree and canopy height, as well as canopy spread of third-party trees where recorded when possible with the laser range finder. When estimated canopy spreads and stem diameters were used this will be accompanied with a * suffix in the tree survey schedule.

5.2.3 It must be noted that those trees beyond the boundary line of the site are under the ownership and responsibility of a third-party. Pruning and management of encroaching tree parts by the site owner will fall within the restrictions of Common Law.

5.3 Categorisation & Gathered Data

5.3.0 All gathered data contained within the Tree Survey Table that is provided within Appendix 1 of this report follows the guidance set out within Clause 4.4 of British Standard 5837 (2012): *Trees in Relation to Design, Demolition and Construction – Recommendations*.

5.3.1 Furthermore, each tree within the Tree Survey Table at Appendix 1 is categorised as per the "Cascade Chart for Tree Quality Assessment" given as Table 1 within British Standard 5837:2012 – a copy of which is provided within Appendix 2 of this report.

6.0 TREE CONSTRAINTS PLAN

6.1 Below Ground Level Constraints

6.1.0 The below ground level constraint on any site will include the root system and rooting environment of trees being retained. The data gathered during the tree survey permits the creation of a Tree Constraints Plan (TCP). The TCP illustrates the tree location within and adjacent to the site, the physical dimensions of the main stem and crown above ground as well as the constraints below ground level caused by the calculated Root Protection Area (RPA) of each tree.

6.1.1 The calculated RPA is indicated by the orange broken circle on the TCP and shows the minimum area around each tree or groups of trees, subject to the tree survey, which is deemed to contain sufficient roots and rooting environment to maintain the current vitality of the tree. This area is as per the recommendations of Clause 4.6 of British Standard 5837:2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*.

6.1.2 In the first instance, the RPA should remain a construction exclusion zone and all proposed development should be planned and located outside the RPA for trees of such quality and value to be retained, essentially leaving the RPA sacrosanct.

6.2 Modification of RPA

6.2.0 Whilst not affecting the total area of the calculated RPA, in some circumstances, the shape of the RPA has been modified from the default circle. This decision has been made by Bartlett Consulting when taking into account the morphology and disposition of roots as influenced by topography of the site and existing site conditions such as the presence of hard surfacing, kerbing, concrete etc.

6.2.1 The shape of the RPA of a number of trees has been modified to account for the presence of the existing building.

6.3 Above Ground Level Constraints

6.3.0 The above ground level constraints on a development site can be numerous, resulting primarily from the current and/or ultimate crown height and spread of the retained tree; tree species characteristics such as evergreen or deciduous; the height of the tree crown above ground level; and any "nuisance" that might be the result of a tree's proximity to living areas.

6.3.1 Proposed structures should be designed and/or located with due consideration of above ground constraints so as to prevent direct damage from occurring to the structure, as well as the need for unnecessary and possibly damaging tree management works due to shade and/or falling leaves affecting amenity space and living areas.

6.3.2 Where considered appropriate to do so, this report will give consideration to the growth potential of younger trees and the possible effects caused of this above ground constraint on the site.

6.3.3 Proposed structures should be designed and/or located with due consideration to above ground constraints as shown on the TCP so as to reduce the potential for direct damage to proposed structures and/or existing trees, as well as the need for unnecessary and possibly damaging tree management.

7.0 CONCLUSIONS

7.1 Initial Considerations

7.1.0 The site is currently accessed via a narrow, gated driveway not of a sufficient size to accommodate large vehicles such as would be typically used within the construction works. Furthermore, the driveway is considered disproportionate for the size of property. As such it is likely that the driveway will have to be widened or re-routed as part of any scheme however careful consideration must be given to the impact this may have on retained trees especially T78 & T79.

7.1.1 The existing buildings and swimming pool are positioned relatively centrally within the site with limited encroachment from existing trees most of which are growing to the boundaries. As such there is considered to be suitable free space within the site for re-development whilst retaining trees identified as good quality and without the need for significant facilitation pruning or development within root protection areas.

7.1.2 A mixture of Western Red Cedar and Lawson Cypress have been planted heavily throughout the site within linear groups. Although these trees are providing effective screening they have been left relatively unmanaged and as a result in places have become an overbearing feature within the site and on neighbouring trees. Selective removal as well as pruning management regime would be considered reasonable.

7.1.3 The mature Lombardy Poplar (T63) located on the northern site boundary is considered to be growing very close to the existing property and causing suspected structural damage to the garage. Furthermore previous pruning has resulted in significant regrowth on suspected weakened points of attachment which has resulted in previous failure and will experience further failures in time if left un-managed. With this in mind either a significant height reduction or removal of the Lombardy Poplar should be considered as part of any future scheme.

7.1.4 The survey has identified two individual Common Oaks (T27 & T79) both of which require further level 3 internal decay testing to determine their structural condition. Information gained from further testing would determine suitability for retention. This testing should be carried out at the earliest possible stage, especially as the outcome from test results pertaining to the Common Oak T79 would have significant implications on the proposed access and driveway design.

7.1.5. All of the trees on and around the site are considered important in the landscape as amenity and screening assets, as well as for wildlife habitat, with the potential for post-development pressure providing grounds for objection from Haringey Council as contrary to Policy DM1 Delivering High Quality Design & DM18 Residential Basement Development & Light Wells as referenced within the Development Management DPD adopted July 2017.

7.1.6 Trees marked for removal as part of any planning application (contrary to Policy G7 of the adopted London Plan) will subsequently trigger the adopted planning guidance requirement for tree replacement planting within the site, or financial contribution to The London Borough of Haringey Council for them to plant trees.

7.0 CONCLUSIONS (Continued…)

7.2 Future Considerations

7.2.0 Once a more detailed scheme has been presented, an Arboricultural Impact Assessment (AIA) can be undertaken, formally taking into account any issues relating to the proposed development design and site layout, with regards to the existing trees.

7.2.1 The AIA will identify any trees that will require facilitation pruning or removal, and the appropriateness of such works, as well as the requirement for replacement tree planting.

7.3.2 Where the AIA has identified potential tree and development conflicts, we will provide recommendations for design modification and adjustment of the proposed footprint where necessary. The AIA will also provide methods of mitigation to ensure potential conflict does not cause damage to any retained trees.

7.3.3 An Arboricultural Method Statement (AMS) will be the final phase of the project, whereby specific construction methods and details pertaining to mitigation measures are provided.

7.3.4 The Tree Protection Plan (TPP) is typically composed at the same time when the AMS is written, following finalisation of a development design/ site layout. The TPP will identify trees to be retained, removed, and pruned for facilitation purposes, as well as the location and specification of tree protection barriers and non-compacting ground protection to be installed on site.

7.3.5 The AMS will consider construction activities where they are in close proximity to retained trees, dealing with issues such as site access, intensity of activity, the provision of a suitable working space, designated areas for delivery and storage of building materials, and if known at the time of writing, the location of service runs and soakaways.

APPENDIX 1 TREE SURVEY KEY

Tree Reference Number	The tree number of physical tree tag (if applicable) provided to an individual tree or group of trees, as shown on the Tree Constraints Plan.
Species	Generally the common name given to the tree species. The Latin name is sometimes provided as clarification where deemed necessary.
Height	This figure is given in metres. Measurements are obtained using a digital clinometer. A black asterisk * will denote that the measurement is estimated.
Stem Diameter	This figure is given in millimetres. Measurement are obtained using a standard diameter tape, whilst measured from 1.5 metres above ground level, or otherwise indicated. A black asterisk * will denote that the measurement is estimated.
Crown Spread	This figure is given in metres. Measurements are obtained radially for all four cardinal points using a laser range finder. A black asterisk * will denote that the measurement is estimated.
Crown Clearance	This figure is given in metres. Measurements are obtained radially for all four cardinal points, between the crown and ground level, and obtained using a digital clinometer. A black asterisk * will denote that the measurement is estimated.
Height to first major branch	This is an approximate figure given in metres. Measurements are obtained by identifying the lowest lateral branch within the crown. Recorded information will also refer to a cardinal direction, and obtained using a digital clinometer. A black asterisk * will denote that the measurement is estimated.
Age	The following abbreviations are used to give the age of the tree; NP = Newly Planted, Y = Young, aged less than one quarter of its life expectancy, SM = Semi-Mature, trees of approx. one quarter of its life expectancy, EM = Early-Mature, between one quarter & half of its life expectancy, M = Mature, trees of over half of its life expectancy, OM = Over Mature, trees exceeding their life expectancy, V = Veteran, over mature trees which contain multiple wildlife habitat features & associations.
Physiological Condition	The following considerations are used to evaluate the physiological conditions of a tree (foliage & vitality): Dead, Poor, Fair & Good, with intermediate descriptions using same phrasing.
Structural Condition	Standard comments referring to the visible structural condition of tree: Hazardous, Poor, Fair, Good, with intermediate descriptions using same phrasing.
Observations	These are brief comments which relate to observations from ground level, unless otherwise stated. These observations are made to assist in categorising the tree. They do not provide or replace a comprehensive condition survey.
Preliminary Management Recommendations	These recommendations will only identify the need for more detailed assessment/inspection or tree management due to tree hazards of features which present an immediate risk to persons & property. The tree works do not consider general husbandry or required management of the trees, nor do they consider tree works that may be required prior to development or to facilitate access to the site.
Estimated Remaining Contribution	This is the number of estimated years that the tree will remain present and contribute to the local landscape. The following bands are used; <10 years, 10+ years, 20+ years & 40+ years.
Categorisation	This is the grading category applied following the tree survey. Trees are categorised in accordance with the cascade chart provided within Table 1 in BS: 5837 (2012). A copy of this chart is provided within Appendix 2 of this report. A red asterisk * will denote that the categorisation as given will be dependent upon information gained from further detailed inspection of the tree.
Root Protection Area & Root Protection Radius	The RPA is a figure given in metres squared, the minimal area which should be left undisturbed. The RPR is a figure given in metres, a measured radial distance away from the trees main stem.

APPENDIX 2 BRITISH STANDARD: 5837 (2012) TABLE 1: TREE CATEGORISATION

TREES UNSUITABLE FOR RETENTION				
CATEGORY & DEFINITION	**CRITERIA**			**IDENTIFICATION ON PLAN**
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 serious, irremediable, structural defects, 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 might be desirable to preserve.			**DARK RED**
TREES TO BE CONSIDERED FOR RETENTION				
CATEGORY & DEFINITION	**CRITERIA (subcategories)**			**IDENTIFICATION ON PLAN**
	1. Mainly arboricultural values	2. Mainly landscape values	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)	**LIGHT 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 & 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	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	**MID 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 significant 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**
	NOTE: Whilst category C trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.			

APPENDIX 3 BRITISH STANDARD: 5837 (2012) TREE SURVEY SCHEDULE

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
T1	Norway Maple *Acer platanoides*	10	300	3	4	4	4	5	3	3	5	2.0 m east	SM	Fair	F	G	F	• Growing on boundary • Crown lift and conifer hedge creating asymmetrical crown	• No works currently required	10+	C1	41 3.6
G2	Lawson Cypress *Chamaecyparis lawsoniana*	5	280	1	1	1	1	2	2	1	2	1.0 m	SM	Fair	G	F	F	• Group of 7 single and multiple stem specimen • Topped at 5.0m • Providing effective screening	• No works currently required	10+	C2	36 3.4
G3	Viburnum *Viburnum*	3	90	1	1	1	1	2	2	2	2	2	SM	Fair	F	P	P	• Two single stem specimen • Previously topped at 3.0m	• No works currently required	10+	C2	4 1.1
T4	Wild Cherry *Prunus avium*	6	360	3.5	4.5	3	3	2.5	3	4	2	2.0 m all direction	EM	Poor	P	F	P	• Decay at base • Deadwood throughout crown • Previous unsympathetic pruning • Asymmetrical crown bias to north	• No works currently required	10+	C1	58 4.3
T5	Bird Cherry *Prunus padus*	6	130	3	2.5	3	2.5	2	2	2	2	2.0 m west	SM	Good	G	G	F	• Single stem specimen	• No works currently required	10+	C1	8 1.6
T6	Wild Cherry *Prunus avium*	6	380	4	4.5	5	3.5	2	2	2	2	1.8 m all directions	M	Fair	P	P	F	• Significant decay at base and on main stem	• No works currently required	<10	U1	66 4.6
T7	Common Yew *Taxus baccata*	3	95	1.5	1.5	1	1.5	0	0	0	0	0.5 m north	Y	Good	G	G	F	• Growing on bank • Asymmetrical crown	• No works currently required	10+	C1	4 1.1
T8	Common Horse Chestnut *Aesculus hippocastanum*	9	240	4	4	4	3	2	2	3	1.5	2.0 m east	SM	Good	G	G	G	• Single stem specimen	• No works currently required	10+	C1	26 2.9

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
G9	Mixed Ornamental	3	100	2	2	2	2	2	2	2	2	-	SM	Fair	F	F	F	• Group of ornamental trees and shrubs	• No works currently required	10+	C2	5 1.2
G10	Common Juniper *Juniperus communis*	7	230	1	1	1	1	0	0	0	0	-	EM	Fair	F	F	F	• Group of 2 multiple stem specimens	• No works currently required	10+	C2	25 2.8
T11*	Common Oak *Quercus robur*	20	900	7	8	9	8	4	4	4	4	4.0 m south	M	Good	G	F	G	• Third party tree • Unable to access at base	• No works currently required	20+	B1	366 10.8
T12*	Common Oak *Quercus robur*	18	800	6	7	8	7	4	4	4	4	4.0 m south	M	Fair	G	F	G	• Third party tree Unable to access at base	• No works currently required	20+	B1	290 9.6
T13*	Common Beech *Fagus sylvatica*	19	500	6	6	6	6	4	4	4	4	4.0 m	SM	Fair	G	F	F	• A linear group of 9 third party trees growing to boundary • Unable to access at base • Northern crowns overhanging site	• No works currently required	20+	B2	113 6
G14	Bigleaf Magnolia *Magnolia macrophylla*	4	90 90 90	3	2	2	3	1	1	1	1	0.5 m all direction	SM	Fair	G	G	G	• Multiple stem specimen	• No works currently required	10+	C1	7 1.5
T15	Bay *Laurus nobilis*	7	300	3	3	2.5	3	1.5	2	2	2	2.0 m all directions	EM	Good	G	G	G	• Single stem specimen • Slight asymmetrical crown bias to north	• No works currently required	20+	B1	41 3.6
T16	English Elm *Ulmus procera*	8	230	7	4	0	3	6	6	6	6	5.0 m east	SM	Good	F	F	F	• Single stem specimen • Lean on main stem and • Asymmetrical crown bias to north	• No works currently required	10+	C1	25 2.8

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
T17	Common Hornbeam *Carpinus betulus*	16	270 320 310	7	5	3	5	2	2	3	3	3.0 m north	EM	Good	G	F	F	• Bifurcation of main stem at base resulting in 3 co dominant leaders • Natural bracing • Asymmetrical crown bias to north	• No works currently required	20+	B1	125 6.3
T18	Common Lime *Tilia europaea*	17	400	6	4	4	4	6	3	6	5	5.0 m north	SM	Good	G	G	G	• Single stem specimen • Asymmetrical crown bias to north	• No works currently required	20+	B1	72 4.8
T19	Western Red Cedar *Thuja plicata*	6	160	1.5	1.5	1	1.5	0	0	0	0	1.0 m north	Y	Good	G	G	F	• Bifurcation of main stem at 1.8m • Asymmetrical crown bias to north	• No works currently required	10+	C1	11 1.9
T20	Norway Maple *Acer platanoides*	14	300	3	3	4	6	5	4	4	4	3.0 m west	SM	Good	G	G	F	• Third party tree • Unable to access at base • Asymmetrical crown bias to south and west	• No works currently required	20+	B1	41 3.6
T21	Western Red Cedar *Thuja plicata*	15	240 230	2	2	2	2	1	1	1	1	2.0 m south-east	SM	Fair	G	F	F	• Bifurcation of main stem at 1.0m • Thinning crown attributed to shading out	• No works currently required	10+	C1	50 4
T22	Common Hornbeam *Carpinus betulus*	15	210 220 320	6	5	3	7	3	3	4	2	2.0 m east	M	Good	F	G	F	• Multiple stem specimen • Asymmetrical crown bias to west attributed to loss of dominant tree	• No works currently required	20+	B1	88 5.3
T23	Persian Ironwood *Parrotia persica*	6	180	4	4	3	4	2	2	3	2	2.0 m north, east & west	SM	Good	G	F	F	• Lean on main stem and asymmetrical crown bias to west • Previous pruning	• No works currently required	10+	C1	15 2.2
T24	Common Oak *Quercus robur*	15	750	5	5	5	5	7	7	7	7	7.0 m	D	Dead	P	P	P	• Dead standing	• Reduce to safe height and retain as monolith	<10	U1	-

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
T25	Western Red Cedar *Thuja plicata*	14	300	2	2	2	2	1	1	1	0	1.5 m west	SM	Fair	G	G	F	• Single stem specimen • Thinning of lower crown attributed to shading out	• No works currently required	10+	C1	41 3.6
T26	Western Red Cedar *Thuja plicata*	14	320	2	2	2	2	2	3	3	3	4.0 m north	SM	Fair	G	G	F	• Single stem specimen • Lower crown shaded out	• No works currently required	10+	C1	45 3.8
T27	Common Oak *Quercus robur*	15	630	4	5	7	3	3	3	3	3	5.0 m south	EM	Fair	F	P	F	• Wound on main stem and suspected cavity • Poor resonance when sounded • Habitat hole on main stem 6.0m north • Asymmetrical crown bias to south	• Carry out level 3 internal decay testing to establish structural stability of tree	10+	B1*	181 7.6
T28	Common Oak *Quercus robur*	17	700	7	6	8	7	3	3	3	3	6.0 m north	EM	Fair	F	G	F	• Single stem specimen • Asymmetrical crown bias to south	• No works currently required	20+	B1	222 8.4
T29	English Elm *Ulmus procera*	12	200	3	3	3	3	2	2	2	2	3	D	Dead	P	P	P	• Dead standing	• Remove	<10	U1	-
T30	Acer	5	90 90 90 90	3	3	2	6	2	2	2	2	2.0 m	SM	Fair	P	F	P	• Multiple stem specimen • Poor previous management	• No works currently required	10+	C1	15 2.2
T31	Western Red Cedar *Thuja plicata*	13	240	3	3	1	2	2	2	2	2	2.5 m north	SM	Fair	G	F	F	• Lean on main stem and asymmetrical crown bias to north	• No works currently required	10+	C2	26 2.9
T32	Common Ash *Fraxinus excelsior*	14	150	3	1	0	1	5	5	5	5	5.0 m north	SM	Fair	F	F	F	• Drawn up form • Asymmetrical crown bias to north	• No works currently	10+	C2	10 1.8
T33	Western Red Cedar *Thuja plicata*	14	310	2.5	2.5	2.5	2.5	2	2	2	2	2.0 m west	SM	Fair	G	G	F	• Shading out of lower crown	• No works currently required	10+	C2	43 3.7

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
T34	Common Oak *Quercus robur*	12	550	4	2	4	3	6	6	5	6	6.0 m north	EM	Fair	P	P	F	• Wounding and suspected cavity at base and on main stem • Poor resonance when sounded	• Remove / Carry out level 3 inspection if you wish to retain for a period of time	10+	C1	137 6.6
T35	Common Hornbeam *Carpinus betulus*	14	470	3	5	5	5	2	3	4	3	3.0 m east	EM	Fair	P	P	F	• Significant wounding at base and on main stem attributed to fire damage • Asymmetrical crown bias to east and west	• No works currently required	10+	C1	99 5.6
T36	Common Hornbeam *Carpinus betulus*	14	330	8	6	6	4	3	2.5	2	4	4.0 m north & south	SM	Good	G	F	G	• Bifurcation of main stem at 2.5m resulting in twisted leaders • Asymmetrical crown bias to east	• No works currently required	20+	B1	50 4
T37	Common Oak *Quercus robur*	18	830	8	6.5	7	8	3	5	5	4	8.0 m south-east	EM	Good	G	G	F	• Major deadwood throughout crown	• Remove major deadwood	20+	B1	314 10
T38	Common Ash *Fraxinus excelsior*	16	270	3	3	3	3	5	5	5	5	7.0 m west	SM	Poor	G	G	P	• Drawn up form and suppression from hedge • Suspected Ash dieback expressed throughout crown	• No works currently required	<10	U1	32 3.2
T39	9x Leyland cypress, 2x Common Lime and 1x Common Oak	16	360	4	4	4	4	2	2	2	2	N/a	SM	Fair	G	G	F	• Group of trees growing to western boundary • Providing effective screening from neighbouring property • Drawn up form	• No works currently required	20+	B2	58 4.2
G40	Wild Cherry *Prunus avium*	13	380	0	0	0	0	0	0	0	0	0	D	Dead	P	P	P	• Dead standing stem	• Remove to ground level	<10	U1	66 4.6
T41	Common Holly *Ilex aquifolium*	5	190	2	2	1	2	2	2	2	2	2.0 m north-west	SM	Poor	G	P	P	• Suppression from neighbouring trees	• No works currently required	10+	C1	17 2.3

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
T42	Common Oak *Quercus robur*	18	850	5	6	7	8	5	5	3	2	3.0 m west	EM	Fair	G	G	F	• Third party tree • Unable to access at base • Major deadwood throughout crown and overhanging boundary	• Remove major deadwood	20+	B1	327 10.2
T43	Sycamore *Acer pseudoplatanus*	16	410	3	6	5	4	4	3	3	3	4.0 m south	SM	Fair	G	F	F	• Lean on main stem and asymmetrical crown bias to north • Crown in conflict with neighbouring hedge resulting in drawn up form	• No works currently required	10+	C1	75 4.9
T44	Common Oak *Quercus robur*	17	650	4.5	5	5	5.5	3	3	2.5	4	3.0 m west	EM	Good	G	G	F	• Single stem specimen • Storm damage within upper crown • Major deadwood throughout crown	• Remove major deadwood	20+	B1	191 7.8
T45	Wild Cherry *Prunus avium*	14	460	-	-	-	-	-	-	-	-	-	D	Dead	P	P	P	• Dead standing stem	• Remove to ground level	<10	U1	-
T46	Common Oak *Quercus robur*	19	600	6	5	5	6	5	5	4	4	5.0 m east & west	EM	Good	G	G	G	• Single stem specimen • Habitat holes on main stem no currently considered of significant concern • Deadwood throughout crown	• Remove major deadwood	20+	B1	163 7.2
T47	Common Oak *Quercus robur*	19	870	5	6	8	4	5	4	5	8	8.0 m east & South	EM	Fair	G	G	F	• Single stem specimen • Major deadwood throughout crown	• Remove major deadwood	20+	B1	340 10.4
G48	Western Red Cedar *Thuja plicata* & Leyland *CypressX Cupressocyparis leylandii*	18	490	4	4	4	4	0	0	0	0	0	EM	Good	G	G	G	• Group of 18 trees growing to form hedge • Average stem dia 200mm • Largest tree is end tree nearest the house	• No works currently required	10+	C1	109 5.9

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
T49	Goat Willow *Salix caprea*	9	200	5	5	1	0	2	2	3	4	2.5 m east	SM	Fair	G	F	F	• Cambial damage visible on main stem • Lean on main stem and asymmetrical crown bias to east	• No works currently required	10+	C1	18 2.4
T50	Sycamore *Acer pseudoplatanus*	18	460 480	5	6	4	6	7	7	7	7	8.0 m west	EM	Good	G	F	F	• Bifurcation of main stem at base • Drawn up form due to competition from hedge • Asymmetrical crown bias to north	• No works currently required	20+	B1	201 8
G51	Leyland *CypressX Cupressocyparis leylandii*	17	320	2	5	3	4	2	2	2	2	-	SM	Fair	G	G	F	• Linear group of approx. 40 trees growing to the north & western site boundary • Effective screening from neighbouring property	• No works currently required	10+	C2	45 3.8
T52	Sycamore *Acer pseudoplatanus*	13	160 250	3	0	0	3	3	3	3	3	3.0 m west	SM	Fair	F	P	P	• Bifurcation of main stem at 1.5m • Significant asymmetrical bias to west • Suppression from hedge	• No works currently required	10+	C1	41 3.6
T53	Monterey Cypress *Cupressus macrocarpa*	19	650	2	4	5	3	2	1	0	0	2.0 m east	EM	Fair	F	G	P	• Single stem specimen • Asymmetrical crown bias to east due to competition from hedge • Providing effective screening from neighbouring property	• No works currently required	20+	C2	191 7.8
T54	Atlas Cedar *Cedrus atlantica*	18	300	1	5	3	1	2	2	2	2	2.0 m south	SM	Decline	G	G	P	• Single stem specimen • Significant suppression from neighbouring trees and hedges	• No works currently required	10+	C2	41 3.6
T55	Norway Spruce *Picea abies*	14	170	0	2	2	0	0	0	0	0	0.5 m south	SM	Poor	G	G	P	• Significant suppression from neighbouring trees	• No works currently required	10+	C2	13 2

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
T56*	Common Horse Chestnut *Aesculus hippocastanum*	19	800	5	5	6	4	3	3	3	3	2.5 m south	EM	Good	G	G	F	• Third party tree • Unable to access at base	• No works currently required	20+	B1	290 9.6
T57*	Common Horse Chestnut *Aesculus hippocastanum*	16	600	4	4	4	4	4	4	4	4	5.0 m north	EM	Fair	G	G	F	• Third party tree • Unable to access at base	• No works currently required	20+	B1	163 7.2
G58	Leyland *CypressX Cupressocyparis leylandii*	17	300	4	3	5	2	1	2	2	2	1.0 m all directions	SM	Fair	G	G	F	• Two third party trees overhanging site boundary • Unable to access at base	• No works currently required	10+	C2	41 3.6
T59	Himalayan Tree-Cotoneaster *Cotoneaster frigidus*	10	140	2	2	2	2	4	4	4	4	3.0 m	SM	Decline	G	G	P	• Drawn up form • Significant decline with limit evidence of live growth	• No works currently required	<10	U1	9 1.7
T60	Viburnum *Viburnum*	8	190	2	3	2	1	1	1	1	1	2.0 m north	SM	Fair	G	F	F	• Single stem specimen • Asymmetrical crown bias to north • Providing effective screening from neighbouring property	• No works currently required	10+	C1	17 2.3
T61	Lawson Cypress *Chamaecyparis lawsoniana*	8	190	1	2	1	1	2	2	3	4	1.5 m east	SM	Fair	G	G	F	• Asymmetrical crown bias to north and east due to competition from neighbouring tree • Providing effective screening from neighbouring property	• No works currently required	10+	C1	17 2.3
T62	Himalayan Tree-Cotoneaster *Cotoneaster frigidus*	9	160 170 180 200	1.5	6	4	6	2	2	3	3	2.0 m east	M	Good	G	F	F	• Multiple leaders from 1.0m • Previous pruning of lower southern crown • Providing effective screening from neighbouring property	• No works currently required	10+	C1	58 4.3

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
T63*	Lombardy Poplar *Populus nigra 'Italica'*	28	1400	5	5	5	5	3	3	3	3	2.0 m all directions	M	Good	G	G	F	• Located on boundary, ownership unclear • Unable to access fully around base • Causing suspected damage to property • Historically topped at 9.0 m resulting in multiple regrowth on suspected weakened points of attachment	• Consider re-pollarding back to previous points or removal	20+	B1	707 15
T64*	Common Horse Chestnut *Aesculus hippocastanum*	15	550	4	6	7	2	4	2	2	3	3.0 m east	SM	Fair	G	F	F	• Located on boundary ownership unclear • Unable to inspect around entire base • Asymmetrical crown significant bias to south-east	• No works currently required	20+	B1	137 6.6
G65*	Leyland *CypressX Cupressocyparis leylandii*	14	300	3	3	3	3	1	1	1	1	1	SM	Fair	G	G	F	• Third party hedge unable to access at base • Linear group growing to boundary • Providing effective screening from neighbouring property	• No works currently required	10+	C1	41 3.6
T66*	Common Horse Chestnut *Aesculus hippocastanum*	16	410 350	4	3	4.5	4	2	2	2	2	5.0 m west	SM	Fair	G	G	F	• Third party tree • Unable to access at base • Southern crown overhanging site boundary	• No works currently required	20+	B1	133 6.5
T67	Common Oak *Quercus robur*	21	830	3	3	8	5	4	4	3	3	7.0 m north	EM	Fair	G	F	F	• Significant burring on main stem • Asymmetrical crown bias to south & west	• No works currently required	20+	B1	314 10
T68*	Common Lime *Tilia europaea*	19	450	5	5	4	5	2	4	4	5	3.0 m east	SM	Good	G	G	F	• Third party tree • Unable to access at base	• No works currently required	20+	B1	92 5.4

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
T69*	Norway Maple *Acer platanoides*	18	700	4	4	8	4	8	8	8	8	6.0 m south	EM	Good	G	F	F	• Third party tree • Unable to access at base • Drawn up form • Asymmetrical crown bias to south overhanging site boundary	• No works currently required	20+	B1	222 8.4
T70*	Sycamore *Acer pseudo platanus*	14	400	4	5	6	5	4	4	3	4	2.5 m south	SM	Good	G	G	F	• Third party tree • Unable to access at base Southern crown overhanging site boundary	• No works currently required	20+	B1	72 4.8
T71*	Common Oak *Quercus robur*	19	900	8	8	9	7	10	10	3	3	8.0 m north & south	M	Good	G	G	G	• Third party tree • Unable to access at base • Southern crown overhanging site boundary	• No works currently required	20+	B1	366 10.8
T72	Common Oak *Quercus robur*	12	550	0	0	0	0	0	0	0	0	0	D	Dead	P	P	P	• Dead leaning stem	• Remove to ground level	<10	U1	-
T73	Norway Maple *Acer platanoides*	14	180	0	1	4	1	7	7	4	7	4.0 m south	Y	Good	G	G	F	• Single stem specimen • Asymmetrical crown bias to south	• No works currently required	20+	C1	15 2.2
T74	Norway Maple *Acer platanoides*	14	210	1	3	5	2	4	3	3	3	2.5 m south	SM	Good	G	G	F	• Asymmetrical crown bias to south	• No works currently required	20+	C1	20 2.5
G75	Common Ash *Fraxinus excelsior*	19	300	4	6	7.5	5	5	5	3	4	4.0 m east	SM	Fair	G	G	F	• Group of 4 single stem specimen growing within proximity to one another forming a combined crown	• No works currently required	20+	B2	41 3.6
T76	Western Red Cedar *Thuja plicata*	8	210	2	2	2	2	1	1	1	1	2.0 m north	SM	Fair	G	F	P	• Suppression from neighbouring trees • Limited room for future growth	• No works currently required	10+	C1	20 2.5

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
T77	Lawson Cypress *Chamaecyparis lawsoniana*	6	170	1	1	4	2	1	1	0	0	1.0 m east	EM	Fair	G	F	P	• Asymmetrical crown bias to south • Branches breaking out under weight	• No works currently required	10+	C1	13 2
T78	Common Oak *Quercus robur*	18	650	6	7.5	6	8	5	2.5	2.5	3	4.0 m east	EM	Good	G	G	G	• Single stem specimen • Major deadwood throughout crown	• Remove major deadwood	20+	B1	191 7.8
T79	Common Oak *Quercus robur*	17	970	7	10	10	10	4	7	7	4	8.0 m west	M	Fair	P	G	G	• Historical wounding at base and presence of fungal fruiting bodies • Poor resonance when sounded around southern quadrant at base • Major deadwood throughout crown	• Carry out level 3 inspection to determine extent of decay at base	20+	B1*	423 11.6
T80	Cider Gum *Eucalyptus gunnii*	13	380	6	5	5	5	3	5	6	4	3.5 m north	SM	Good	G	F	F	• Significant lean on main stem to west self-corrected between 4-5 m resulting in poor structure	• No works currently required	10+	C1	66 4.6
T81	Strawberry Tree *Arbutus unedo*	8	220 260	5	4	2	4	2	2	2	2	2.0 m	EM	Decline	F	F	F	• Multiple stem specimen • Dieback expressed throughout crown	• No works currently required	10+	C1	53 4.1
T82	Lawson Cypress *Chamaecyparis lawsoniana*	10	170	1	1	1	1	2	2	2	2	2.5 m south	SM	Decline	F	F	P	• Single stem specimen • Ivy on main stem and throughout crown suppressing vigour	• No works currently required	<10	U1	13 2
G83*	Sycamore, Ash, & Yew	16	300	5	5	5	5	2	2	2	2	3.0 m	SM	Fair	G	G	F	• Group of third party trees located beyond the eastern boundary • Providing effective screening from the adjoining Golf course	• No works currently required	20+	B2	41 3.6

Tree Ref No.	Species	Ht. (m)	Stem Dia. (mm)	Crown Spread				Crown Clearance				Ht. to 1st limb (m)	Age	Phys. Cond.	Structural Condition			Observations	Preliminary Management Recommendations	Life Exp.	Cat.	RPA in m2 (Radius/ m)
				North	East	South	West	North	East	South	West				Basal	Stem	Crown					
T84	Pissards Plum *Prunus atropurpurea*	8	290	3.5	3	3.5	4	2.5	2.5	2	2	2.0 m all directions	M	Decline	P	F	F	• Multiple fungal fruiting bodies at base Significant • Expressed throughout crown	• No works currently required	<10	U1	38 3.5
T85	Tree Rhododendron *Rhododendron arboreum*	3	150 110 90	3	2	1	3	1	1	1	1	1.5 m north	EM	Good	F	F	F	• Multiple stem specimen from base • Asymmetrical crown bias to north	• No works currently required	10+	C1	380 11

APPENDIX 4 LIMITATIONS OF REPORT

Limitations of the Tree Survey & Scope of the Report

- This report is restricted to those trees & vegetation shown on the attached Tree Constraints Plan, described within the tree survey schedule, as identified within the instruction as per Section 1.1.
- All plans are illustrative of the discussions within the report and based entirely on the drawings provided to Bartlett Consulting. All scaled measurements must be checked against the original submission documents as well as confirmed on site.
- The survey was based on unaided, visual observations made from ground level only, using the principles of a Visual Tree Assessment (VTA).
- The trees were not climbed at the time of the survey.
- All observations were made from within the curtilage of the site or from a public open space unless otherwise stated.
- The tree survey is preliminary in its nature and must not be interpreted as a detailed tree condition inspection.
- This report does not consider the possible implications to any existing or proposed built structures. These matters will be dealt with in future reports as deemed necessary/ as and when instructed.

Timing of the Tree Survey & the Report

- The observations & finings of this report remain valid for one year, from the date of issuance.
- The observations & findings will be invalidated if any building works are undertaken, soil levels altered or tree works implemented.
- In the instance where building works have occurred, soil levels are altered or tree works completed, it is recommended that a new tree survey and report is completed.

Trees in Relation to Other Properties

- The tree survey and report consider only those trees in relation to the site as identified.
- It does not comment upon the possible effects of trees on neighbouring properties, including matters concerning subsidence or heave, or with regards to potential hazards presented by trees surveyed.
- Neighbouring land/tree owners that are identified as posing a potential risk to the site should seek their own independent advice.
- Damage to, or potential damage to any existing structures that are not referred to within this report is not considered, unless otherwise specified. This is inclusive of built structures within and neighbouring the site.

Trees in Relation to Subsidence, Heave and Direct Damage

- This report does not deal with matters concerning subsidence or heave to any existing built structure on or neighbouring the site. It may be prudent to consider the effects of heave on any built structure if trees are to be removed.
- Similarly, the issue of direct damage (physical damage caused by tree roots) is not dealt with in this report.

Trees Subject to Statutory Controls

- Whilst Bartlett Consulting has made attempts to ascertain if any of the trees subject to this report are ‘protected’, their status may be subject to change. Therefore the final responsibility for checking statutory protection for trees rests with the employed contractor and not with Bartlett Consulting
- Any prescribed tree works to a protected tree are provided due to perceived hazard and risk, and should be considered acceptable by the Local Planning Authority (LPA). However appropriate notification must still be provided to the LPA as they may take an alternative point of view.

Trees Subject to Environmental Factors

- The statements, findings and preliminary recommendations made within this report do not take into account any effects of extreme climate and weather incidences, vandalism, changes in the natural and built environment around the tree(s) after the date of this report, nor any damage whether physical, chemical or otherwise.

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APPENDIX 5 REPORT REFERENCES

As a progressive company, we keep abreast of research data relating to Arboriculture. All observations, recommendations and works are based on current industry standard reference material and a selection of pertinent items is shown below.

This survey and report have evolved from industry material including the following:

- O'Callaghan & Lawson (1995) *Trees and Development Conflicts: Importance of Advanced Planning & Site Control in Tree Preservation Plans*
- Matheny & Clark (1998) *Trees and Development a Technical Guide*
- BS 5837: (2012) *Trees in Relation to Design, Demolition and Construction – Recommendations*
- BS 3998: (2010) *Tree Works - Recommendations*
- Town & Country Planning Act (Tree Preservation) (England) Regulations 2012
- Mattheck, C, Bethge K, Weber K. (2015) *The Body Language of Trees – Encyclopaedia of Visual Tree Assessment*
  Karlsruhe Institute of Technology Campus North.

Bartlett Consulting's arboricultural expertise has been used to interpret these references for practical application to the site and the trees which are the subject of this report, and to provide the most appropriate advice and guidance at this stage of project planning.

APPENDIX 6 GLOSSARY

Abiotic. Pertaining to non-living agents; e.g. environmental factors.
Absorptive roots. Non-woody, short-lived roots, generally having a diameter of less than one millimetre, the primary function of which is uptake of water and nutrients
Adaptive growth. In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stress.
Adaptive roots. The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading.
Ancient tree. A specimen that has passed maturity, is very old in comparison to other trees of the same species and is in the final stage of its life. Ancient trees are important ecological assets in the landscape.
Architecture. In a tree, a term describing the pattern of branching of the crown or root system.
Bacteria. Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms.
Bark. A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, hard and rigid with protective capabilities.
Bifurcation. The junction where single stems/branches divide into two at a union, sometimes implying that the two stems above the union are of similar size (see co-dominance).
Biotic. Pertaining to living agents; e.g. viruses, bacteria, fungi, plants & animals.
Bracing. The use of rods or cables to restrain the movement between parts of a tree.
Branch:

- **Scaffold.** A first order branch arising from a stem
- **Lateral.** A second order branch, subordinate to a scaffold branch or stem and bearing sub-lateral branches
- **Sub-lateral.** A third order branch, subordinate to a lateral or scaffold branch, or stem and usually bearing only twigs

Branch bark ridge. The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem.
Branch collar. A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base.
Brown-rot. A type of wood decay in which cellulose is degraded, while lignin is only modified.
Buckling. An irreversible deformation of a structure subjected to a bending load.
Canker. A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria
Co-dominance. In a woodland, a tree whose crown is at the general level of the canopy. Alternatively, within the crown of a tree, branches/stems of equal size above a union.
Compartmentalization. The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and/or active defences operating at the boundaries of the affected region.
Compression strength. The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees with special drilling devices.
Compression. A force which pushes and tends to compress. The material fails by being crushed or by buckling (following sideways deflection).
Condition. An indication of the physiological vitality of the tree. Where the term 'condition' is used in a report, it should not be taken as an indication of the stability of the tree
Conservation Area (CA). A geographical area recognized in the Town and Country Planning Act 1990 as being *'of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance'.*
Crown/Canopy. The main foliage bearing section of the tree
Crown Clean. The removal of dead, dying, damaged or diseased branches from the crown of a tree. Sometimes called 'dead wooding'.
Crown Lifting. The removal of limbs and/or small branches to achieve a specified vertical clearance above ground level or other surface.
Crown Reduction/shaping. An operation that results in an overall reduction in the height and/or spread of the crown of a tree by means of a general shortening of twigs and/or branches, whilst retaining the main framework of the crown and preserving, as far as possible, the natural tree shape.
Crown Thinning. The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a well-balanced branch structure.
Defect. Any feature of a tree that is likely to make it less safe (in the case of a structural defect) or otherwise to reduce its health, longevity, landscape prominence or conservation value for any other reason.
Dieback. The death of parts of a woody plant, starting at shoot-tips or root-tips.
Disease. A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms.
Dominance. In trees, the tendency for a leading shoot to grow faster or more vigorously than the lateral shoots; also the tendency of a tree to maintain a taller crown than its neighbours.
Dysfunction. In woody tissues, the loss of physiological function, especially water conduction, in sapwood.
DBH (Diameter at Breast Height). Stem diameter measured at a height of 1.5m or the nearest measurable point. Where measurement at a height of 1.5 metres is not possible, another height may be specified.
Deadwood. Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of species and seldom represents a threat to the health of the tree. Removal of deadwood is generally recommended only where it represents an unacceptable level of hazard.
Epicormic shoot. A shoot having developed from a dormant or adventitious bud and not having developed from a first year shoot.
Felling licence. In the UK, a permit to fell trees in excess of a stipulated number of stems or volume of timber.
Formative pruning. Pruning of young trees to modify their form at maturity, either to avoid future structural defects (for instance by singling a twin-stem) or to create a desired cultivated tree form.
Flush-cut. A pruning cut which removes part of the branch bark ridge and or branch-collar.
Girdling root. A root which circles and constricts the stem or roots possibly causing death of phloem and/or cambial tissue
Habit. The overall growth characteristics, shape of the tree and branch structure.
Harm. Personal injury or death, property damage, or disruption of activities.
Hazard. An element of tree risk: the tree part(s) with a capacity to cause damage or injury.

Hazard beam. A curved woody stem, where loading tends to bend it against the direction of curvature. They have a tendency to split longitudinally through the centre due to strongly opposing internal stresses.
Heartwood/false-heartwood/ripe wood. Sapwood that has become dysfunctional as part of the natural aging processes.
Included bark (ingrown bark). Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact.
Infection. The establishment of a parasitic micro-organism in the tissues of a tree or other organism.
Lever arm. A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch.
Lions tailing. A term applied to a branch of a tree that has few if any side-branches except at its end, and is thus liable to snap due to end-loading.
Loading. A mechanical term describing the force acting on a structure from a particular source; e.g. the weight of the structure itself or wind pressure.
Longitudinal. Along the length (of a stem, root or branch)
Lopping. A term often used to describe the removal of large branches from a tree, but also used to describe other forms of cutting.
Minor deadwood. Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree.
Mulch. Material laid down over the rooting area of a tree or other plant to help conserve moisture; a mulch may consist of organic matter or a sheet of plastic or other artificial material.
Natural bracing. A natural/grown structure formed above a union in the crown of a tree, which restricts the movement of the constituent union parts. Without mechanical stimulus, the centre of a union may not develop normally.
Occlusion. The process whereby a wound is progressively closed by the formation of new wood and bark around it.
Photosynthesis. The process whereby plants use light energy to split hydrogen from water molecules, and combine it with carbon dioxide to form the molecular building blocks for synthesizing carbohydrates and other biochemical products.
Pollarding. The removal of the tree canopy, back to the stem or primary branches. Pollarding may involve the removal of the entire canopy in one operation, or may be phased over several years. The period of safe retention of trees having been pollarded varies with species and individuals. It is usually necessary to re-pollard on a regular basis, annually in the case of some species.
Pruning. The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs.
Reactive Growth/Reaction Wood. Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth).
Risk. The combination of the likelihood of an event and the severity of the potential consequences.
Risk Assessment. The process of risk identification, analysis and evaluation.
Root zone. Area of soils surrounding a tree likely to contain absorptive and/or structural roots of the tree/s. The Primary root zone is that which we consider of primary importance to the physiological well-being of the tree.
Saprophyte: a fungi which uses non-living organic material and works beneficially for its host, recycling carbon, nitrogen, and other nutrients.
Sapwood. Living xylem tissues.
Selective delignification. A kind of wood decay (white-rot) in which lignin is degraded faster than cellulose.
Simultaneous white-rot. A kind of wood decay in which lignin and cellulose are degraded at about the same rate.
Soft-rot. A kind of wood decay in which a fungus degrades cellulose within the cell walls, without any general degradation of the wall as a whole.
Shrub species. Woody perennial species forming the lowest level of woody plants in a woodland and not normally considered to be trees.
Stem/s. The main supporting structure/s, from ground level up to the first major division into branches.
Stress. In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature.
Stress. In mechanics, the application of a force to an object
Structural roots. Roots, generally having a diameter greater than ten millimetres, and contributing significantly to the structural support and stability of the tree.
Stub (snag). In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snag usually tends to die back to the nearest growing point.
Taper. In stems and branches, the degree of change in girth along a given length.
Targets. In tree risk assessment (with slight misuse of normal meaning) persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it.
Tension. A force which pulls and tends to stretch. A material in tension may suffer ductile failure or brittle failure.
Topping. In arboriculture, the removal of the crown of a tree, or of a major proportion of it.
Tree Preservation Order (TPO). An order made by a local planning authority in England to protect specific trees, groups of trees or woodlands in the interests of amenity.
Understorey. A layer of vegetation beneath the main canopy of woodland or forest or plants.
Union. The area of physiological division of one primary tree stem/branch into two or more secondary members, commonly referred to as 'fork'.
Vascular wilt. A type of plant disease in which water-conducting cells become dysfunctional.
Veteran tree. A loosely defined term for an old specimen that is of interest biologically, culturally or aesthetically because of its age, size or condition and which has usually lived longer than the typical upper age range for the species concerned.
Vigour. The health and resilience of a tree (from the Latin 'to be strong'), reflected in the capacity of the whole tree to grow. The term is often used as a description of overall condition on a qualitative scale from 'high' to 'low'.
Vitality. A close synonym of vigour reserved for active processes in a tree that do not result in the capacity for growth, for instance a tree's response to injury, insect attack or disease.
VTA. Visual Tree Assessment. A structured and systematic evaluation of a tree considering biological and mechanical functions and systems, arriving at a failure criteria and tree management recommendations.
White-rot. A range of kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded.
Wind exposure. The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity.
Wind pressure. The force exerted by a wind on a particular object.
Windthrow. The blowing over of a tree at its roots.
Woundwood. Wood with atypical anatomical features, developed in response to a wound, often resulting in a swelling (as round a pruning wound) which gradually occludes the wound.

We trust that the contents and recommendations contained within this report were informative, easy to understand and helpful to you, with regards to managing your tree. Should you have any further questions or concerns, please do not hesitate to contact us again.

REPORT CLASSIFICATION: Part 1: BS: 5837 Tree Survey & Constraints Plan

REPORT STATUS: Final

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SIGNATURE:

DATE: 22.10.2021