

Initial Arboricultural Survey, Impact Assessment & Method Statement

70 Woodlands Avenue
Rustington
West Sussex

28 February 2017



PJC ref: 4340/17-01

This report has been prepared by
PJC Consultancy Ltd
on behalf of
Peter Leach Investments

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1 EXECUTIVE SUMMARY

1.1 **Proposal:** A proposal has been outlined to re-develop the site creating new accommodation with associated parking and access.

1.2 **Site location:** The site is situated to the south of Rustington in West Sussex. The surrounding land use is comprised primarily of residential with small commercial and retail units to the southeast. The location of the site within its environs is shown in figure 1.



Figure 1: Location of Site and Environs

1.3 **Tree removals:** 5 x trees will be removed to facilitate the proposed development. These are all of lower value and can feasibly be replaced as part of the landscaping stage of the development.

1.4 **Access facilitation pruning:** Trees T10 will require access facilitation pruning to allow high sided vehicles to access the site during construction.

1.5 **Works within root protection areas:** New surfaces will be constructed within the root protection area of T8. The majority of the proposed new surface is a block-paved walkway. This should be constructed above existing ground levels in a 'no-dig' method to preserve roots of the third party tree to the north.

2 INTRODUCTION

2.1 Instruction: PJC Consultancy has been instructed by Peter Leach Investments to provide an arboricultural impact assessment for proposed construction works at 70 Woodlands Ave. The site is proposed to be re-developed removing the existing dwelling.

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

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

2.4 Contents of report: This report has been produced to provide a schedule trees to be removed or pruned for the proposed development, as well as to evaluate the implications of the development on retained trees. The report includes the following:

- A schedule of existing trees at the site including an assessment of their condition and value based on the existing land use.
- A schedule of trees to be retained/removed.
- A schedule of access facilitation pruning required for development.
- An assessment of the impact construction works will have on retained trees and mitigation measures to be implemented.
- An assessment of post development pressures on trees.
- Recommendations for post development arboricultural management.
- Tree Constraints Plan and Tree Protection Plan.

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

- Topographical site plan
- Proposed site plan

3 INITIAL TREE SURVEY SUMMARY

3.1 Site visit: A site visit was carried out on 24th February 2016. The weather conditions at the time were dry and bright. The visibility was suitable to carry out a comprehensive tree survey. The initial survey assessed the trees in the context of the existing land use, not in consideration of development proposals.

3.2 Tree information: The following measurements and information were recorded in the Tree Survey Schedule for each tree or tree group:

- Tree reference number. (T=tree, G=group, H=hedgerow, W=woodland block).
- Species (common and scientific name).
- Overall tree height (m).
- Stem diameter (mm) per stem or average diameter for trees with 6 or more stems.
- Branch spread (m) measured to the four cardinal points.
- Existing height (m) above ground level of lowest significant branch and direction of growth.
- Existing height (m) above ground level of canopy.
- Age class (young, semi mature, early mature, mature, over mature or veteran).
- Physiological condition (good, fair, poor).
- Structural condition (good, fair, poor).
- Comments (general description of tree including any notable features).
- Preliminary management recommendations.
- Tree categorisation (see below).
- Root protection area (m²).
- Root protection radius (m).

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

3.4 Tree categorisation summary:

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

3.5 Tree sub categorisation summary:

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

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

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

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

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

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

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

3.12 **Site layout:** The site consists of a single detached residential property set within front and rear gardens. Mature woody shrubs located around the perimeter of the site make up the majority of the vegetation on site. The rear no significant or note worthy trees are located within the site. G1 to the rear provides screening and is to be retained and a third party Birch, (T8) to the front is noted to be of good form and value.

3.13 **Statutory tree protection:** No information is available regarding Tree Preservation orders at the time of this report. However, any persons proposing to undertake tree works must check the status of these trees with the local authority, and gain necessary consent before works are undertaken.

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

3.15 **Tree categorisation summary:** The table below summarises the category of trees recorded across the site. Further information can be found about each tree within the Tree Survey Schedule in Appendix 2.

Table 1: Tree categorisation summary

Categorisation	Individual tree	Tree group
A	0	0
B	1	0
C	6	2
U	1	0
Total	8	2

4 ARBORICULTURAL IMPACT ASSESSMENT

4.1 **Tree removals:** Trees to be removed for the proposed development are shown with dashed outlines on the Tree Protection Plan in Appendix 1. These include T4, T5, G6, T7 & T10 all of which are either CAT C or lower.

4.2 **Access facilitation pruning:** T10 a mature *Viburnum* may require crown lifting to facilitate hi-sided vehicle access during construction phase as the crown overhangs the entrance of the property by approximately 2m.

4.3 All access pruning should be carried out in accordance with BS3998: 2010 '*Tree works – recommendations*'. Any additional

4.4 **Works within Root protection areas:** New surfaces to the northern boundary are proposed to be created within the root protection area of T8 a mature third party birch. Total incursion within the root protection area of this tree equates to 17% of the total area. The tree currently appears of good vitality and should not be adversely affected by the additional surface provided it is constructed to a no dig-permeable specification with provision made to avoid localised compaction post development. The methodology for surfacing within root protection areas is outlined in the arboricultural method statement.

4.5 All proposed buildings will be located outside the root protection areas of retained trees. Provided the exclusion zones and methodologies described in the arboricultural method statement and Tree Protection Plan are followed, trees proposed for retention should not be adversely affected by the construction works.

4.6 **Privacy and screening:** Vegetation has been retained at the rear boundary to maintain screening levels, planting is proposed to be carried out to the frontage of the new development to soften the impact of the proposal when viewed from Woodlands Avenue.

4.7 **Services:** Details of the routing of services for the proposed development are not currently available, however no change in the routed supply of services is expected to change. If details of a change to the routing of new services become available, prior to commencement, these shall be reviewed by the project arboriculturalist. The arboriculturalist shall then confirm to the local authority arboricultural officer either that no works will be carried out within root protection areas, or provide details of the methodology required to ensure the works are carried out in accordance with NJUG10 '*Guidelines for the planning, installation and maintenance of utilities in proximity to trees*' and BS5837: 2012.

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

4.9 Provided the approaches and methodologies and exclusion zones described in the arboricultural method statement are followed, trees proposed for retention in this report should not be adversely affected by the proposed construction works.

5 ARBORICULTURAL METHOD STATEMENT

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

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

5.3 **Initial tree works:** The tree works listed in the management column of the Tree Survey Schedule shall be carried out as the first stage of development. Tree stumps and vegetation located within the root protection areas of retained trees shall be cleared with controlled hand tools (e.g. stump grinder/brush cutter). Plant machinery shall not be used to scrape vegetation within root protection areas or access the site until the tree protection barriers have been installed.

5.4 If bonfires are lit to dispose of arising's from the vegetation or tree clearance works, an assessment of wind direction and strength shall be made to ensure flames cannot extend within 5m of any part of a retained tree, including its root protection area.

5.5 Trees should be checked for protected species before works are undertaken. It is against the law to disturb bats or their roosts under the Conservation of Habitat and Species Regulations. Nesting birds are protected by the Wildlife and Countryside Act. If protected species are discovered, Natural England should be contacted for advice.

5.6 The tree works contractors should carry out all tree works to BS3998: 2010 '*Tree works – recommendations*' as modified by research that is more recent. They should also carry relevant, adequate and up to date insurance.

5.7 It is recommended that an Arboricultural Association approved contractor carry out all tree works. Approved contractors are expected to work to industry best standards. The Arboricultural Association website contains contact details and information on engaging a suitable contractor.

5.8 **Tree protection barriers:** The root protection areas of retained trees must be left free from disturbance, and protected from contamination or compaction during the proposed works.

5.9 The tree protection fencing shall be installed in the locations shown on the Tree Protection Plan. The specification for fencing is included in Appendix 5. Signs shall be affixed to the fencing as shown in Appendix 6 to explain its purpose.

5.10 Tree protection barriers shall be installed following the initial tree works, prior to construction traffic entering the site. They shall remain in place for the duration of construction and hard landscaping works unless otherwise stated in this report.

5.11 The areas protected by fencing or ground protection shall be referred to as the construction exclusion zones. The following actions shall be prohibited within the construction exclusion zones:

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

5.12 **Storage and handling of harmful chemicals:** Provision needs to be made to avoid the storage and handling of harmful chemicals in proximity to trees. Harmful chemicals include fuels, oils, builder's sand (which has a high salt content) and cement. Cement mixing shall only occur where there is no potential for cement washings to leech into a root protection area. Provision shall also be made to prevent fuelling or the handling of cement from occurring in areas proposed for further planting.

5.13 **Contractor facilities:** A suitable location for site cabins, contractor parking and site facilities for operatives shall be agreed with the project arboriculturalist during a pre-commencement meeting. These facilities should be located outside the root protection areas of retained trees (unless on retained tarmac surfaces). Provision must also be taken to prevent exhaust fumes or hot air from generators or kitchen facilities from damaging the canopies of retained trees.

5.14 **New permanent surfacing within root protection areas:** Where new permanent surfacing is installed within root protection areas, this shall occur above ground level. The surface vegetation including tree stumps may be removed using controlled hand tools. Plant machinery must not be used to scrape the surface vegetation.

5.15 A minimum buffer of 500mm shall be left between the buttresses of retained trees and the edge of the new surface to minimise post development damage from buttress roots.

5.16 The new surface needs to be permeable to air and water and should be constructed above ground level. This is to allow roots to respire without there being a build up of carbon dioxide, and to ensure the roots continue to receive the moisture and oxygen they require to function.

5.17 Traditional kerbing requires excavation to install and will therefore not be acceptable within the root protection areas of retained trees. As an alternative, haunched kerbing, treated timber edging, aluminium L-shaped edging, galvanised metal edging or no fixed edging shall be used.

5.18 The finished level of the no-dig surface will be higher than the surrounding un-surfaced ground. To mitigate this, clean-screened topsoil may be banked around the edge of the surface. It is recommended that no less than a gradient of 1:3 be used as increasing the ground level within a root protection area can disrupt root function. It is also necessary to avoid banking soil around the buttresses or buttress roots of retained trees.

5.19 If access is required onto the cellular confinement system before the final top surface is installed, a temporary surface (plywood boards or similar) shall be used to prevent soil and other building debris blocking the airspaces in the cellular confinement system, therefore reducing the final porosity of the completed surface.

5.20 Installation of the new surfaces within root protection areas will require access into the construction exclusion zones defined by the tree protection fencing and ground protection. During these works, the standard restrictions to works within the construction exclusion zone will apply (refer to paragraph 5.11). Scaffold board footpaths shall be used to transport materials across the root protection areas.

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

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

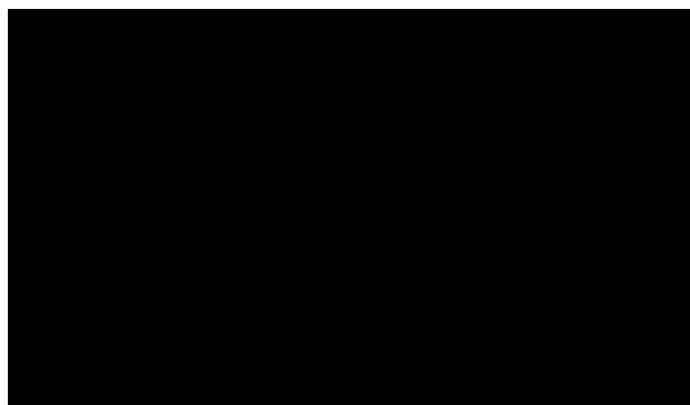
5.23 All planting pits within root protection areas shall be individually hand excavated (no trench planting). Care must be taken to avoid severing or damaging roots with a diameter greater than 25mm.

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

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

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Date: 28 February 2017

APPENDIX 1

Arboricultural Plans

Key:

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

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

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report ref. no. PJC/4340/17-01 contains further information for each tree.

This drawing should be viewed in colour.



Drawing no: PJC/4340/17/A Rev: 00 Sheet number: 1 of 1

Client and site:
Peter Leach Investments
70 Woodlands Ave
Rustington
West Sussex

Drawing title: Tree Constraints Plan

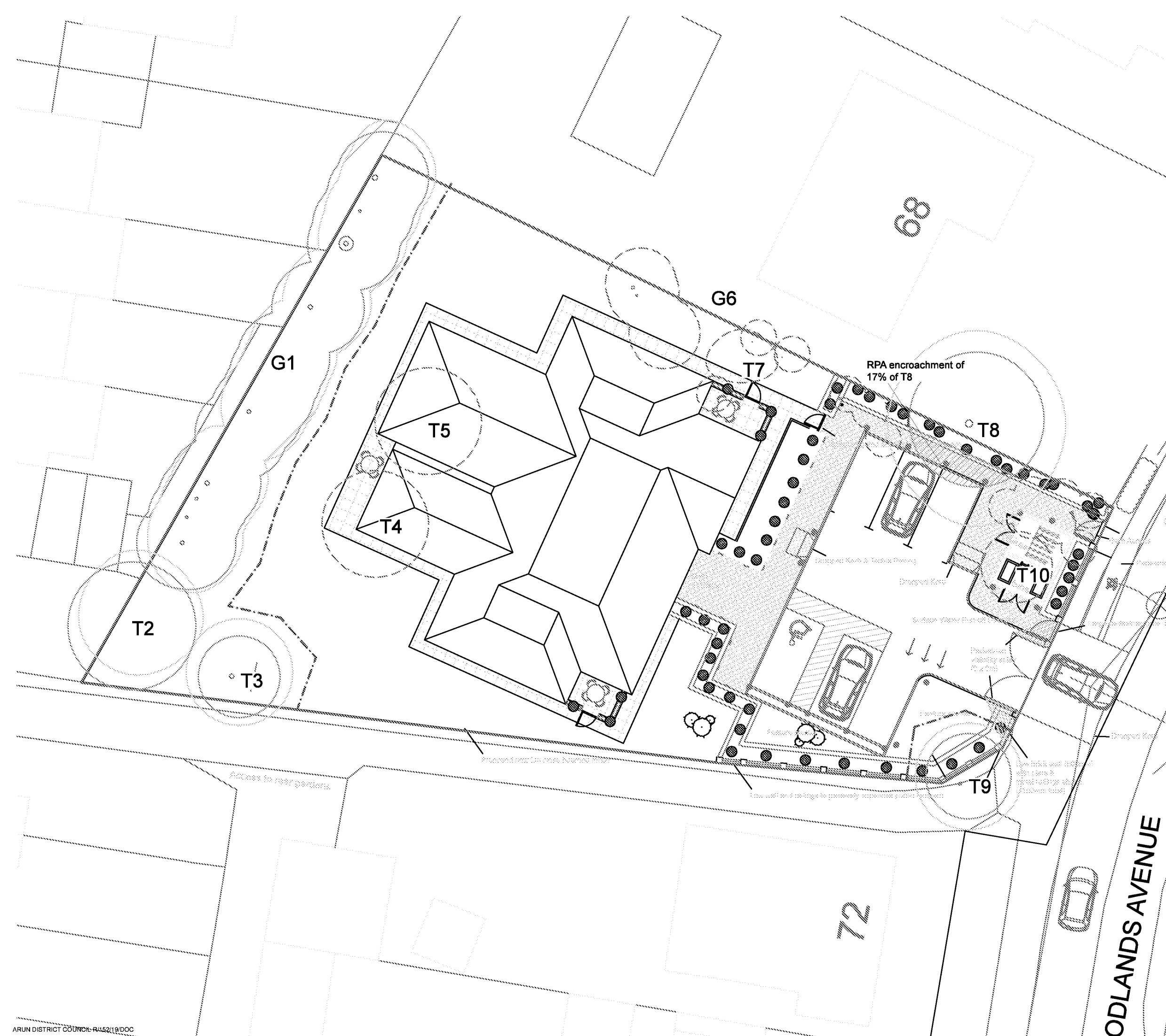
Date drawn: 28/02/2016

Scale: 1:200 at A3

Drawn by: OA **Checked by:** PD



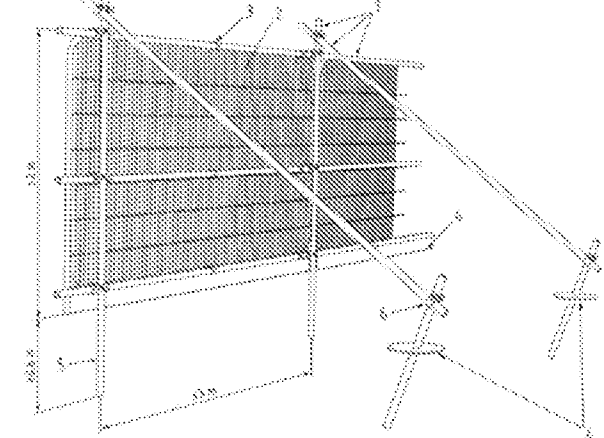
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- Key:**
- RPA for tree to be retained
 - Canopy of tree to be retained
 - Canopy of tree to be removed
 - Tree protection fencing
 - RPA Encroachment
 - Construction exclusion zone

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report ref. no. PJC/4340/17-02 contains further information for each tree.

This drawing should be viewed in colour.
Specification for Tree Protection Fencing:



- Key**
- 1. Standard scaffold poles
 - 2. Heavy gauge 2 x 4 timber guanoed tube and welded mesh infill panels
 - 3. Panels secured to uprights and crossmembers with wire ties
 - 4. Ground level
 - 5. Uprights driven into the ground until secure (minimum depth 0.5m)
 - 6. Standard scaffold clamps

Example protective fencing signage:



Drawing no: PJC/4340/17/A	Rev: 00	Sheet number: 1 of 1
Client and site: Peter Leach Investments 70 Woodlands Ave Rustington West Sussex		
Drawing title: Tree Protection Plan		
Date drawn: 28/02/2016		
Scale: 1:200 at A3		
Drawn by: OA	Checked by: PD	

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APPENDIX 2

Tree Survey Schedule

Tree Survey Schedule

			Client: Peter Leach Site: 70 woodland avg, Rustington. Survey date: 24th February Surveyor: Owen Allpress									T: Individual tree or shrub		
												G: Group of 2 or more trees		
												H: Hedgerow		
												W: Woodland block		
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)		Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Management recommendations	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
G1	Mixed species cypress	>4	220	N	3	Crown	Mature	Good	Good	Rear boundary mature hedge, previously topped.	None at time of survey	C2	21.9	2.6
				E	3	1e								
			avg est	S	3	Branch								
				W	2	2e								
T2	Common walnut, <i>(Juglans regia)</i>	6	300	N	4	Crown	Mature	Good	Good	Tree located in rear corner boundary, leans into garden of no. 70	None at time of survey	C1	40.8	3.6
				E	4	2e								
			est	S	3	Branch								
				W	3	3e								
T3	Cherry laurel, <i>(Prunus Laurocerasus)</i>	4	190	N	3	Crown	Mature	Good	Good	Mature Cherry Laurel in planting bed	None at time of survey	C1	16.4	2.3
				E	3	2e								
			est	S	3	Branch								
				W	3	2e								
T4	Hazel, <i>(Corylus avellana)</i>	4	200	N	3	Crown	Mature	Good	Good	Multi-stem tree amidst lawn	Remove to facilitate proposal	C1	18.1	2.4
				E	3	1s								
			ms est	S	3	Branch								
				W	3	2s								
T5	Ornamental Apple, <i>(Malus spp)</i>	4	200	N	3	Crown	Mature	Good	Poor	Deadwood and dieback, poor condition	Remove to facilitate proposal	C1	18.1	2.4
				E	3	1s								
				S	3	Branch								
				W	3	1s								
G6	Ornamental woody shrubs	>4	100	N	1	Crown	Semi-mature	Good	Good	Various small woody shrubs on side boundary, includes elm sucker growth to front	Remove to facilitate proposal	C1	4.5	1.2
				E	1	0								
			est avg	S	1	Branch								
				W	1	1								

Tree Survey Schedule

				Client: Peter Leach Site: 70 woodland avg, Rustington. Survey date: 24th February Surveyor: Owen Allpress								T: Individual tree or shrub		
												G: Group of 2 or more trees		
												H: Hedgerow		
												W: Woodland block		
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)		Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Management recommendations	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
T7	Ornamental Apple, (<i>Malus spp</i>)	4	120	N	2	Crown	Semi-mature	Good	Fair	Stem damage at 2m	Remove to facilitate proposal	C1	6.5	1.4
				E	2	2e								
				S	1	Branch								
				W	2	2e								
T8	Silver birch, (<i>Betula pendula</i>)	9	320	N	5	Crown	Mature	Good	Good	Third-party birch within neighbouring front garden.	None at time of survey	B1	46.4	3.8
				E	5	3s								
			est	S	6	Branch								
				W	5	4s								
T9	Viburnum	4	200	N	3	Crown	Mature	Good	Good	Large third-party viburnum adjacent to front gate. Foliage overhangs access.	Crown lift or reduce to allow high sided vehicles to pass if required during construction.	C1	18.1	2.4
				E	3	3n								
			est	S	3	Branch								
				W	3	3n								
T10	Flowering cherry, (<i>Prunus spp</i>)	3	120	N	2	Crown	Mature	Poor	Poor	poor condition heavily reduced majority of tree without foliage.	Remove to facilitate proposal	U	6.5	1.4
				E	2	2s								
			est	S	2	Branch								
				W	2	2n								

APPENDIX 3

Cascade Chart for Tree Quality Assessment

Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of their current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after the removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>Note Category U trees can have existing or potential conservation value which it might be desirable to preserve</i>			Red
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Green
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remedial defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher value 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	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

APPENDIX 4

Root Protection Area Formulas

CALCULATING THE RPA

For single stemmed trees

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

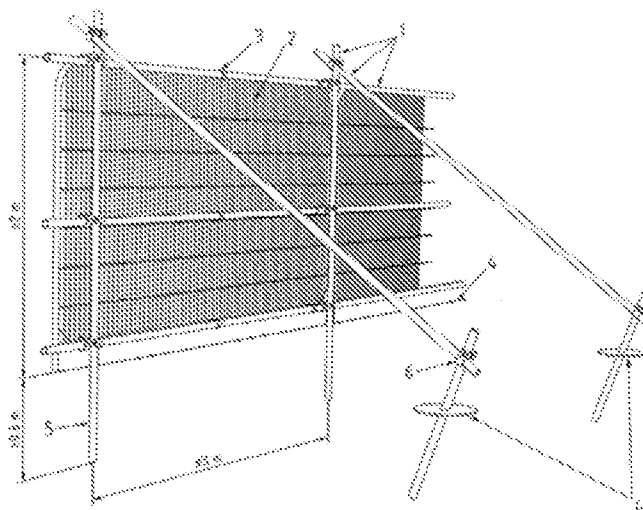
For trees with two to five stems, a combined stem diameter is calculated as follows:

$$\sqrt{(\text{stem diameter } 1)^2 + (\text{stem diameter } 2)^2 \dots + (\text{stem diameter } 5)^2}$$

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

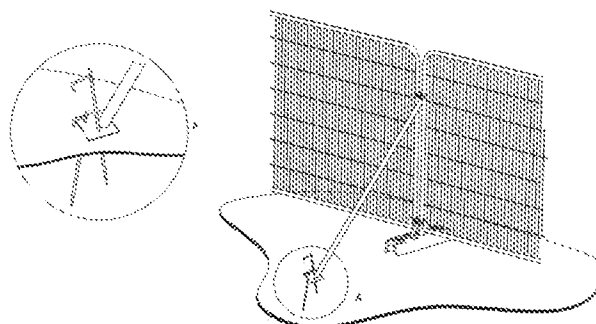
$$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$$

APPENDIX 5 Tree Protection Fencing Specification

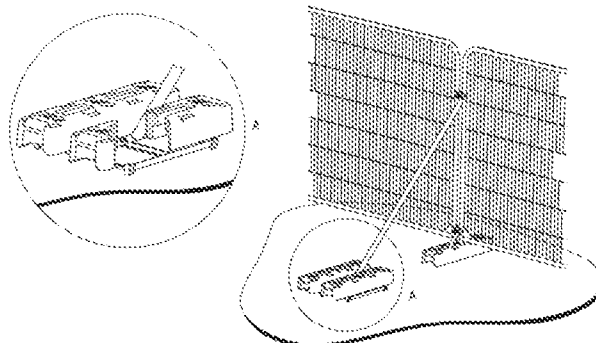


Key

- 1 Standard scaffold poles
- 2 Heavy gauge 2 mm tall galvanized iron and welded mesh (2.5 m)
- 3 Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.5 m)
- 6 Standard scaffold clamps



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

APPENDIX 6

Example Protective Fencing Signs

