

Arboricultural Impact Assessment

The Tiled Barn

Station Road

Rustington

BN16 3AR

Report compiled by:

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PJC CONSULTANCY LTD

PJC Ref No: PJC/3514/14

Summary

This report was commissioned to satisfy the requirements of arboricultural issues defined by planning policy, at the request of Globe Estates (Southern) Ltd.

The proposed project should not affect existing and/or retained trees on the site as long as protection measures set out in BS5837: 2012 *Trees in relation to design, demolition and construction* and recommendations outlined in this report are followed.

Objectives of this report

PJC Consultancy's involvement in this project can be defined by the following objectives:

To provide a schedule of the existing trees that are situated in areas that are likely to be potentially affected by the proposed construction project.

To classify the existing trees using the process defined by BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*'.

To provide arboricultural guidance on protection measures to be implemented during the construction process, and prevent future conflict between trees and structures.

To promote the retention of existing trees wherever feasible and appropriate.

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- 2 Site visit and observations
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1 INTRODUCTION

1.1 **Brief:** I have been commissioned by Tony Harrison of Globe Estates (Southern) Ltd to provide a tree survey and arboricultural impact assessment related to a proposed residential development on land adjacent to The Tiled Barn in Rustington.

1.2 **Documents and information provided:** I was provided with the following documents relating to the site:

- Drawing ref. 240914/202/01 – Topographical Survey
- Drawing ref. 2014/32/01 – Proposed Site Plan and Location Plan

1.3 **Scope of this report:** This report is only concerned with the trees within the property boundaries of the site, or in areas that have the potential to be affected by construction works.

1.4 **Background information:** A proposal has been outlined to construct two detached residential dwellings on land adjacent to The Tiled Barn on Station Road in Rustington. PJC Consultancy has been commissioned to undertake a tree survey and provide an arboricultural impact assessment following the guidelines set out in BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*'.

1.5 **Qualifications:** I have a Foundation Degree in Arboriculture and am a professional member of the Arboricultural Association. I have nine years experience in the arboricultural industry, originally working as a groundsman and feller, and progressing into consultancy.

2 SITE VISIT AND OBSERVATIONS

2.1 **Site visit:** I carried out a site visit on 30th September 2014. The weather conditions at the time were light cloud by dry with no wind. The visibility was good.

2.2 **Brief site description:** The site is situated adjacent to the junction between Station Road and Vicarage Lane, to the south of Angmering Train Station. The surrounding land use is comprised of St Mary's Church to the east and residential properties in all remaining directions. The site itself is comprised of an open garden area, formally part of the property named The Tiled Barn. There is an existing workshop, garden shed and garage with a driveway and turning area connecting to Station Road. The site is located within the East Preston Conservation Area.

2.3 **Identification and location of trees:** The trees are not number tagged but their locations are marked on the Tree Constraints Plan in Appendix 1. Each tree has been given an individual reference number for ease of identification. The locations of a small number of trees were not included on the topographical survey provided. Tree numbers suffixed with PA on the Tree Constraints Plan in Appendix 1 indicate the tree position is approximate.

2.4 **Tree observations:** I visually inspected the trees from within the boundaries of the properties and from areas of public access. The height, crown spread and crown clearance for each tree was estimated to the nearest metre. The DBH (stem diameter at 1.5 meters) was measured in millimetres using a diameter tape. Where access was not available, stem diameters were estimated and noted on the Tree Survey Schedule.

2.5 **Limitations of the Survey:** The survey methodology was restricted to a visual tree assessment. No tree climbing or ground investigation was carried out for this report.

3 APPRAISAL

3.1 The trees were assessed and categorised using the cascade chart in BS5837: 2012 'Trees in relation to design, demolition and construction – Recommendations'. Their dimensions were recorded, and their positions plotted on the Tree Constraints Plan in Appendix 1. The Tree Survey Schedule in Appendix 2 contains more detailed information for each tree.

3.2 The categorisation of trees is based on a number of factors. The initial category is U for trees that are in such a condition that they cannot realistically be retained as living trees in the context of the current land use for more than ten years. The remaining trees are then assessed for their arboricultural, landscape and historical, (or cultural) contribution. This assessment takes into account defects and previous pruning to put the trees into A, B and C categories. The highest categorisation is category A, with the lowest being category C. Category C trees are not normally retained if they pose a constraint to development. The cascade chart further explaining the above is included in Appendix 3.

3.3 A total of eight trees and one tree group were surveyed and recorded in the Tree Survey Schedule. One tree was categorised as B with six trees and one tree group categorised as C and one tree categorised as U.

3.4 The largest and most prominent tree at the site is T3, an early mature copper beech (*Fagus sylvatica 'purpurea'*). Although this tree is at a relatively early stage of maturity, it is of good condition, form and vigour and its position near the road frontage affords it good landscape value. T3 makes a positive contribution to the conservation area so has been categorised as B1/B2.

3.5 Trees T1 and T2 comprise two small silver birch (*Betula utilis*), growing in very close proximity to each other. T1 has a poor growth form as a result of suppression from T2. Although both trees are visible externally of the site, they do not have the same landscape significance as T3. T1 and T2 have been awarded category C1 and C2.

3.6 Tree T9 is an early mature yew (*Taxus baccata*), located adjacent to the existing driveway. This tree is positioned close to the boundary fence and its canopy overhangs the pavement by approximately 2m. T9 has an unbalanced canopy shape as a result of light suppression from a mature oak that was removed prior to the initial site visit. T9 has been categorised as C2.

3.7 A number of small apple trees (*Malus domestica*) are located in the centre of the site, ranging from newly planted to early mature specimens. None of apple trees are currently visible from external viewpoints and therefore do not contribute the conservation area. The apple trees have all been awarded category C1, with the exception of T5 which has been categorised as U due to its defects.

3.8 Trees T7 and T8 comprise a cherry (*Prunus avium*) and a laburnum (*Laburnum anagyroides*) located in a third party garden outside the western site boundary. The root protection areas and canopy spreads of both trees partially overhang the site boundary and will require protection during construction works.

4 ARBORICULTURAL IMPACT ASSESSMENT

Tree removal

4.1 Trees requiring removal as a result of direct conflict the proposed development are shown with dashed lines on the Tree Protection Plan. These comprise T1, T2, G4, T5, T6 and T9 (4x category C trees, 1x category U tree and 1x category C group). The copper beech will be retained and protected during the proposed development. To mitigate the loss of the category C trees, it is proposed that a new hedgerow be planted along the eastern site boundary.

Tree works

4.2 Due to the proximity of T3 to the proposed northern dwelling and the position of the new permanent footpath, T3 will need to the crown lifted to 2m. Formatively pruning T3 at an early stage will minimise future maintenance requirements. The canopy of T3 will need to be reduced laterally by approximately 1m (with maximum pruning wound of 50mm) to provide suitable clearance to allow installation of scaffolding for the new dwelling.

4.3 Tree T8 should be reduced away from the site entrance to avoid conflict with construction traffic. This can be achieved by removing only secondary limbs and without having a significant effect on the longevity or amenity value of the tree.

Works within root protection areas

4.4 A new footpath is to be located along the eastern site boundary within the root protection area of T3. The new hard surfacing encroaches the root protection area by 19%, which is less than the 20% maximum encroachment permitted in BS5837: 2012. The new surface will be located a minimum of 2m from the buttress of T3 to avoid significant future disruption from buttress roots. The requirements for surfacing within the root protection area are described in section 5 of this report.

4.5 The existing driveway is to be resurfaced during the proposed development. This will occur within the root protection area of T8. Provided the existing levels are retained within the root protection area, this can be achieved without having a detrimental effect on the tree. The requirements for re-surfacing within the root protection area are described in section 5 of this report.

Services

4.6 Details of the routing of new services for the proposed development are not currently available. The requirements for installation or maintenance of under-ground services for the new development are outlined in the arboricultural method statement.

Post development stresses on trees

4.7 Assuming T3 is allowed to reach full maturity, it can be expected that canopy will eventually overhang the northern dwelling. It is therefore recommended that all roof guttering on the east facing wall be protected by leaf guards.

4.8 Shade cast by T8 will effect the east facing wall of the northern dwelling, particularly in the mornings. The availability of light will be greater in the afternoons. The windows on the west side of the dwelling and the main rear garden will be unaffected by tree shade. The proposed southern property will also be unaffected by tree shade.

4.9 It will be necessary to periodically crown lift T3 over the new footpath. As a species, beech does not react well to heavy canopy reductions. Post development pruning works should occur on a regular basis to ensure the minimum sized pruning wounds are created. As the site is located within a conservation area, the local authority will have a level of control over future tree works to ensure they are carried out in accordance with BS3998: 2010 '*Tree works – recommendations*'.

4.10 The proposed development will not result in increased pressure to carry out pruning works to T7 or T8 to improve light availability or to negate a nuisance.

5 ARBORICULTURAL METHOD STATEMENT

General requirements

5.1 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.

5.2 All operatives at the site shall be briefed about tree related factors as part of their site induction.

Initial tree works

5.3 The tree works listed in the management recommendation column of the Tree Survey Schedule shall be carried out as the first stage of development.

5.4 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.

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

Root protection areas

5.4 Each tree's DBH (stem diameter at 1.5m) was recorded, and applied to the formula found in Appendix 4. The resulting dimensions equal each tree's Root Protection Areas that are plotted on to the Tree Protection Plan in Appendix 1, and added to 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 they were classed in using the cascade chart in Appendix 3.

5.5 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 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.

Tree protection barriers

5.6 The root protection areas must be left free from excavation and disturbance, and protected from compaction or contamination during construction. Protection shall comprise a combination of tree protection fencing and temporary ground protection.

5.7 The locations for the tree protection fencing are shown on the Tree Protection Plan. The fencing shall be installed to the specification shown in Appendix 5. Signs shall be affixed to the fencing as shown in Appendix 6.

5.8 To create a suitable working space around the north dwelling and to allow installation of scaffolding, the outer 2m of the root protection area shall be protected by temporary ground protection. The specification for ground protection shall be a single thickness of scaffold boards on a compressible layer (150mm woodchip or sharp sand), spread across a geotextile membrane. This specification for ground protection is for pedestrian use only.

5.9 The tree protection barriers shall be installed following the initial tree works and prior to the main construction traffic entering the site. They shall remain in place until all external construction and hard landscaping works have been completed.

Storage and handling of harmful chemicals

5.10 Provision needs to be made to avoid the storage and handling of harmful chemicals in proximity to trees. Harmful chemicals include fuels, oils, builders 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 handling of cement from occurring in areas proposed for further planting.

Contractor facilities

5.11 If required, a suitable location for site cabins, contractor parking and site facilities for operatives shall be agreed with the project arboriculturalist during the pre-commencement meeting. These facilities should be located outside the root protection areas of retained trees. Care must also be taken to prevent exhaust fumes or hot air from generators or kitchen facilities from damaging the canopies of retained trees.

New permanent fencing within root protection areas

5.12 Post holes for new fencing within root protection areas shall be hand excavated and sited to avoid major roots (roots with a diameter greater than 25mm). The postholes shall be lined with plastic sheeting (or similar) to prevent cement washings contaminating the surrounding soil.

Resurfacing existing driveway

5.13 The existing driveway is to be resurfaced during the proposed works. The driveway currently provides ground protection for T8 (located adjacent to the site entrance). Within the root protection area, the levels of the existing surface shall be retained. Vehicular access within the root protection area shall be prohibited between the time the existing surface is removed and the time the new surface is installed.

5.14 Within the root protection area, the top surface shall either be broken up and removed using controlled hand tools (pneumatic drill) or using an excavator fitted with a grading bucket without teeth. If an excavator is used, a banksman must be utilised to spot shallow roots and overhanging branches which may not be visible from the cab of the excavator. The existing sub-base shall be retained and augmented as necessary for the new surface.

New permanent surfacing adjacent to T3

5.15 Within the blue hatched area shown on the Tree Protection Plan, the new footpath shall be constructed above ground level (once the surface vegetation has been removed using controlled hand tools). Use of plant machinery within the root protection area of T3 shall be prohibited at any stage of development, including construction of the footpath.

5.16 The new surface shall be constructed on a geotextile membrane. As a garden footpath, it is not expected that it will be a heavily used footpath so use of a cellular confinement system is not required.

5.17 The path (including it's sub-base) must be permeable to air and water (porous resin bonded gravel or similar) to prevent there being a build up of carbon dioxide in the ground when the roots respire and to ensure the roots continue to receive the oxygen and moisture they require to function.

5.18 Traditional kerbing requires excavation to install and will therefore not be acceptable within the root protection areas. As an alternative, treated timber edging, aluminium L-shaped edging or no fixed edging shall be used. The finished level of the no-dig surface will be higher than the surrounding un-surfaced ground. To mitigate this, soil 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.

Services

5.19 When details of the routing of services become available, prior to commencement of construction works, they 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

Arboricultural supervision

5.20 A pre-commencement meeting shall be held between with the contractors and the project arboriculturalist to discuss the tree protection methodology, to ensure the tree protection barriers are installed in the correct locations and to agree locations for contractor facilities. The local authority arboricultural officer shall be given reasonable notice of the pre-commencement meeting so they may attend if it is deemed necessary.

5.21 A system and programme of onsite monitoring by the appointed arboricultural consultant should be agreed with the Local Authority Arboricultural Officer, if it is deemed necessary. Record sheets of site visits should be available for inspection by all parties, and forwarded to a designated employee of the Local Authority.

5.22 If significant root growth is disturbed during construction activities that are not within the scope of this report, all work should cease and the project arboriculturalist 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.

5.23 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 not included in the tree protection methodology

5.24 The supervising arboriculturalist shall be agreed with the local planning authority. It will be necessary for the arboriculturalist to report to the local authority arboricultural officer on the outcome of the site visits as well as well as any unforeseen tree related issues.

6 CONCLUSIONS

6.1 Although a number of small trees will require removal to facilitate the proposed development, their loss should not be detrimental to wider landscape or have an adverse impact on local visual amenity. Engineered solutions have been sought to retain the category B copper beech as this tree has the most landscape significance for the conservation area.

6.2 Based on the above assessment, trees recommended for retention in this report can be protected during the proposed construction and supported following completion of the development.

7 OTHER CONSIDERATIONS

7.1 Arun District Council Planning Department was contacted by phone on 14th November 2014 regarding restrictions to tree works at the site. It was reported that no Tree Preservation Order (TPO) protects the trees on this site on the date of this report, however the site is located within the East Preston Conservation Area. 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.

7.2 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.

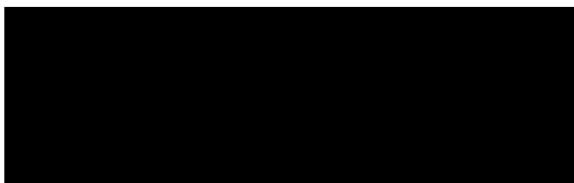
7.3 Trees should be checked for protected species before works are undertaken. It is against the law to disturb bats or their roosts under the Conservation of Habitat and Species Regulations. Nesting birds are protected by the Wildlife and Countryside Act. If protected species are discovered, Natural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

7.4 The trees at this site were assessed for their condition and safety in relation to the average range of weather conditions that the region experiences. Any weather events that exceed the average norm cannot be predicted, and so their effects are not considered within this report.

7.5 The views and opinions contained within this report are entirely those of the author.

Contact details

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Date: 14th November 2014

APPENDIX 1 Tree Constraints Plan and Tree Protection Plan

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/3514/14 contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.



Site: The Tiled Barn, Station Road, Rustington

Client: Globe Estates

Surveyor: Peter Davies

Date Drawn: 01/10/14

Scale: 1:200 at A3

Drawing Number: PJC/3514/14/A

Drawing Title: Tree Constraints Plan





- Key:**
- RPA for CAT B Tree* to be retained
 - RPA for CAT C Tree* to be retained
 - Canopy of tree to be retained
 - RPA for CAT C Tree* to be removed
 - RPA for CAT U Tree* to be removed
 - Canopy of tree to be removed
 - Tree protection fencing
 - Temporary ground protection fencing
 - Extent of no-dig porous surfacing

*** 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/3514/14 contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

Site: The Tiled Barn, Station Road, Rustington

Client: Globe Estates

Surveyor: Peter Davies

Date Drawn: 14/11/14

Scale: 1:200 at A3

Drawing Number: PJC/3514/14/B

Drawing Title: Tree Protection Plan

APPENDIX 2 Tree Survey Schedule

Tree Survey Schedule

				Client: Globe Estates Site: The Tiled Barn, Rustington Survey date: 30/09/2014 Surveyor: Peter Davies							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 recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T1	Birch (<i>Betula utilis</i>)	12	170	N: 1 E: 2 S: 2 W: 2	0 average	Semi mature	Good	Good	Tree located in centre of lawn with upright growth habit, not prominent landscape feature	Remove to facilitate development	C2	13.1	2
T2	Birch (<i>Betula utilis</i>)	7	110	N: 2 E: 2 S: 0 W: 0	1 north	Young	Good	Poor	Narrow growth habit with north lean as tree is suppressed by T1	Remove to facilitate development	C1	5.5	1.3
T3	Copper beech (<i>Fagus sylvatica</i> 'purpurea')	10	390	N: 5 E: 4 S: 4 W: 4	0.5 average	Early mature	Good	Good	Good condition and development potential, no major visible defects	Crown lift to 2m and reduce from dwelling leaving 2m clearance with max pruning wound 50mm	B1/B2	68.8	Refer to Tree Constraints Plan
G4	Apple (<i>Malus domestica</i>) x5	1 average	Up to 50 average	0.5 average	0.25 average	Young	Good	Good	Newly planted trees	Remove to facilitate development	C1	3.1 average	1 average
T5	Apple (<i>Malus domestica</i>)	2	150 above root flair	N: 1 E: 0 S: 0 W: 1	0 west	Semi mature	Good	Poor	Significant basal decay, tree supported by rope and scaffold pole	Remove to facilitate development	U	10.2	1.8
T6	Apple (<i>Malus domestica</i>)	4	220 above root flair	N: 1 E: 1 S: 1 W: 2	0 average	Early mature	Good	Good	Multi-stemmed from 0.5m, regularly reduced	Remove to facilitate development	C1	21.9	2.6

Tree Survey Schedule

				Client: Globe Estates Site: The Tiled Barn, Rustington Survey date: 30/09/2014 Surveyor: Peter Davies							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 recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T7	Cherry (Prunus avium)	5	150 est	N: 3 E: 2 S: 2 W: 2	2 east	Semi mature	Good	Fair	Third party tree only viewed from site, canopy partially overhangs boundary	No action required on date of survey	C1	10.2	1.8
T8	Laburnum (Laburnum anagyroides)	4	200 est	N: 3 E: 2 S: 2 W: 2	1 east	Early mature	Fair	Fair	Third party multi-stemmed shrub located adjacent to site access	Reduce over driveway - remove all secondary branches over site	C1	18.1	2.4
T9	Yew (Taxus baccata)	4	375.4 combined diameter	N: 3 E: 2 S: 5 W: 3	0 average	Early mature	Good	Fair	Dual stemmed, previously crown lifted over pavement	Remove to facilitate development	C2	63.8	Refer to Tree Constraints Plan

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

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

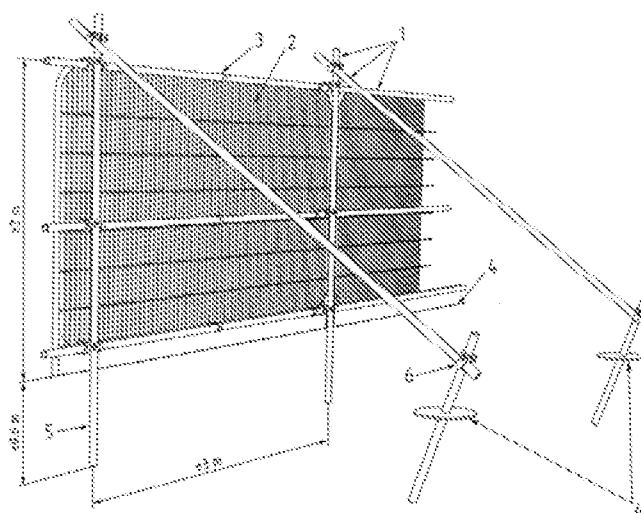
For trees with two to five stems, a combined stem diameter is calculated as follows:

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

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

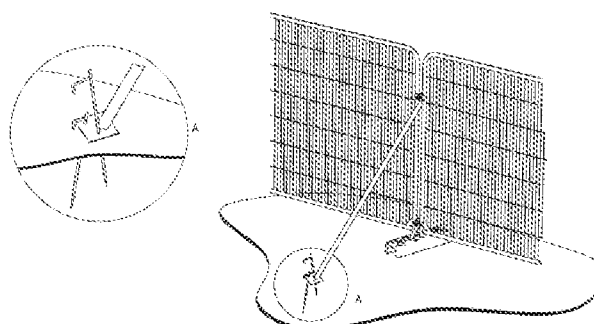
$$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$$

APPENDIX 5 Tree Protection Fencing Specification

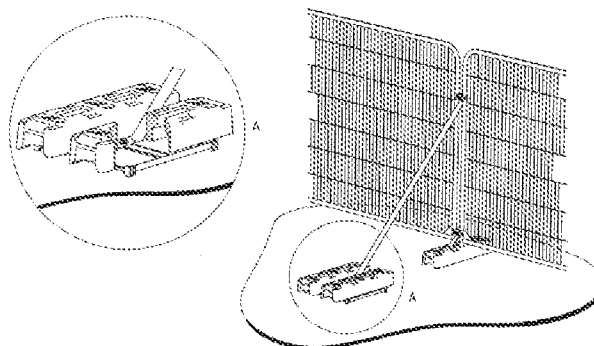


Key

- 1 Standard scaffold poles
- 2 Heavy gauge 7 in. x 11 in. galvanized tube and welded mesh infill panels
- 3 Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.6 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



APPENDIX 7 Photographs



Photograph 1 – Tree T3 (to be retained)



Photograph 2 – Trees T1 and T2 (to be removed)



Photograph 3 – Tree T9 to be removed



Photograph 4 – Tree T8 (required access facilitation pruning)



Photograph 5 – Trees T6 (left) and T5 (right)



Photograph 6 – View of trees T1-T3 from opposite side of Station Road