

BS5837:2012 Tree Survey & Arboricultural Constraints Report

Location: Gnoll House, Gnoll Country Park, Neath

SA11 3DT

Grid Ref: SS76034 97291

w3w:drive.stops.powder

Client: NPTCBC/ Andrew Scott Ltd.

Consultant / Surveyor: Nick Thomas

June 2023

Tree Survey &
Arboricultural Constraints Report
CONTENTS

Summary

Section 1	Introduction
Section 2	Inspection and General Observations
Section 3	Tree and root protection area schedules
Section 4	Arboricultural impact assessment
Section 5	Recommendations
Section 6	Conclusion
Section 7	References

APPENDICES

Appendix 1	Terms and definitions used in the tree schedule.
Appendix 2	Design and specification of tree protection barrier.
Table 1	Cascade chart for tree quality assessment

Site plan(s) showing the position of the schedule trees with their colour coded BS category and the position of the root protection zone fencing.

Section 1. Introduction

1.1 The following tree report has been prepared at the request of Mr David Davies of Andrew Scott Ltd.. The instructions were to survey the trees which are located around the remains of the Gnoll House and in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction provide a report on all the trees which could be affected by the development. A total of twenty individual trees and three groups are shown on the attached site plan and these were the only trees that required surveying for this report.

1.2 The details of the individual trees are listed in the tree schedule and the terms used in the schedule with their definitions are listed in Appendix 1. Further information is available via the Tree Terms website which can be accessed via the [www address in Section 5 . References.](#)

1.3 Only the features apparent at the time of the inspection could be considered and no liability can be accepted regarding trees or their parts that were inaccessible or obscured in part or in whole. It has to be emphasised that although the health and safety of the trees is part of the assessment methodology used, this report is only intended for planning purposes, therefore it should not be construed as an assessment of tree safety. As part of this study faults may be identified and recorded but it remains the land owners / clients responsibility to take the appropriate action. The assessor / surveyor can accept no liability for damage or injury sustained as a result of the failure of any tree or its parts.

1.4 A topographical survey plan was provided but it did not show the locations of the trees.

1.5 This report does not provide information on any conflicts between existing tree roots and buildings or infrastructure.

1.6 This report has been issued as a single PDF file. The tree protection plan (TPP) may need to be printed independently to evaluate and consider any difference in its size and orientation to the report's standard A4 format.

Section 2. Inspection and General Observations.

2.1 The tree survey was undertaken on the 15th June 2023 and was undertaken from ground level with no climbing inspections involved. The weather conditions during the survey was warm with full sun and a light breeze.

2.2 The Gnoll country park is an early 18th century landscaped garden covering over 100 acres in the Vale of Neath. Due to its elevated position and location its western woodlands are clearly visible from the town of Neath and its surrounding areas.

The remains of Gnoll house is situated above the town of Neath within the Gnoll country park and is a vital part of the parks overall attraction and facilities. The trees surrounding the house provide a natural screen. The majority of the trees are deciduous and of native origin.

2.3 Root morphology. The root spread of the trees surrounding the ruins will have been influenced and restricted by the impermeable surface of the tracks and footpaths which access and surround this area. The growing environment beneath these footpaths will be compacted and inhospitable for tree roots. The tree roots above the rock ledge on the northern and eastern side will be asymmetric in form which will affect the trees future anchorage and stability.

In all probability the roots will have exploited the undisturbed ground away from the tracks, footpaths and rock ledge which is better for vigorous and healthy root growth.

2.4 The trees in this area are not protected with a tree preservation order and are not within a conservation area.

2.5 A total of 20 trees and 3 groups were inspected. Their individual positions are plotted on the site plan. All tags have been attached on the tree's main stems at approximately 2 metres above ground level.

2.6 The quality rating for the trees on or affecting this site is summarised as follows.

TABLE A

BS5837 Quality category	Total number of individual trees surveyed	Total number of tree groups surveyed	Total number of woodlands surveyed	Total number of hedges surveyed	Total
A	0	0	0	0	0
B	10	2	0	0	12
C	7	0	0	0	7

U	3	1	0	0	4
Total A,B,C,U	20	3	0	0	23

2.7 Soil assessment. The site's soil was assessed by desktop analysis using the Soilsclapes website, www.landis.org.uk/soilsclapes/, which identified the area as having a slowly permeable seasonally wet and acid loam or clay type soil.

This soil assessment should only be used as a general guide and the project engineer should undertake a detailed on site soil analysis for the foundation calculations and specifications.

Section 3. Tree and root protection area schedules.

TABLE B

Tree no.	Species	Ht. (m)	Stem dia. (mm)	Age	Crown spread (m)				Low branches	Cat.	Notes and recommended work
					N	E	S	W			
159	Pedunculate Oak	17	63	EM	6.5	10.2	9.8	4.4	1.5	B1	
160	Yew	13	114	OM	5.8	6.4	7.7	6.0	1.5	B1	
161	Ash	20	50,51,76	M	7.0	9.4	10.8	10.4	2.0	B1	Check for basal decay, remove all deadwood above 3cms at point of origin and monitor for disease.
G1	Beech, Ash, Elm, Holly, Lime, Sycamore	7-22	N/A	SM-M	Not applicable					B2	Remove all dead and dying trees, sever Ivy on remaining trees and lift crowns and thin to provide a vista.
G2	As G1	7-22	N/A	SM-M	Not applicable					B2	As G1
162	Variegated Holly	6	22	EM	2.6	6.3	1.6	0	2.5	U	Advanced basal decay and a poor form, remove tree

163	Sycamore	11	48	EM	7.4	5.2	7.0	5.2	1.0	U	Low vigour and a poor form, basal decay, remove tree
164	Pedunculate Oak	13	45	EM	7.3	6.5	5.7	6.5	0.5	B1	
165	Blue Atlas Cedar	13	27	SM	2.8	4.9	2.4	3.4	2.0	B1	
166	Birch	15	63	OM	11.0	5.0	8.2	5.0	2.5	U	Advanced basal decay, remove tree.
167	Pedunculate Oak	14	48	EM	8.3	6.3	9.7	5.0	1.5	B1	Very poor form, lift crown to 3 metres and remove dead wood. Numerous cavities- check for bats.
168	Evergreen Oak	17	110	M	5.3	8.0	10.6	7.5	0.5	B1	
169	Yew	16	46	EM	6.0	5.3	2.2	4.5	1.0	C1	Large basal wound on south side
170	Sycamore	20	44, 84	EM	4.0	4.0	5.8	8.0	1.2	B1	Multi stemmed, remove squirrel damaged branches, reduce crown on west side by 2.5m to improve form.
171	Evergreen Oak	19	50, 52	EM	7.3	7.0	5.0	7.0	0	B1	
172	Yew	15	44, 46	EM	5.0	4.4	4.9	5.3	5.0	C1	
G3	Beech, Oak, Sycamore, Elm	5-12		SM-EM	Not applicable					U	Remove all small diameter trees on and directly above rock face.
173	Pedunculate Oak	21	46	SM	2.4	1.3	5.0	5.0	5.0	C1	Low vigour and a poor form, reduce crown on south side by 2.5 metres to improve form.
174	Hornbeam	17	40	SM	3.4	2.7	5.0	2.3	2.0	C1	Suppressed by adjacent trees.

175	Pedunculate Oak	20	48	EM	5.2	3.0	5.0	5.2	2.0	C1	Poor form and suppressed by the adjacent trees.
176	Hornbeam	16	34, 49	EM	6.0	5.4	6.0	5.5	1.0	B1	
177	Pedunculate Oak	9	45	EM	7.6	2.0	5.0	6.0	3.0	C1	Poor form, formative prune upper crown.
178	Beech	8	31	SM	8.6	3.6	3.0	4.8	1.5	C1	
NOTE: Prior to its removal tree will require a bat survey. Remove all deadwood over 2.5cms diameter at its point of origin on all retained											

TABLE C

Tree no.	Species	Mean stem dia. (mm)	RPA 1 (m2)	Minimum radial protection (m)		Justification for RPA modification	Position of protective barrier
				RPA 2	Modified		
159	P. Oak	63	182	7.6	No		Perimeter of RPA
160	Yew	114	590	13.7	Yes	Existing walls within RPA and additional protection measures to be implemented.	To be confirmed on site by arborist.
161	Ash	104	340	10.4	Yes	As 160	As 160
G1	Beech, Ash, Elm, Holly, Sycamore	N/A	N/A	N/A	Yes	As 160	As 160
G2	As G1	N/A	N/A	N/A	No	N/A	N/A
162	Variegated Holly	22	21	2.6	No	N/A	N/A
163	Sycamore	48	106	5.8	No	N/A	N/A
164	P. Oak	45	92	5.4	No	N/A	Perimeter of RPA

165	Blue Atlas Cedar	27	30	3.2	No	N/A	Perimeter of RPA
166	Birch	63	182	7.6	No	N/A	N/A
167	P. Oak	48	106	5.8	Yes	Existing footpath on south and east side of tree.	To be confirmed on site by arborist.
168	Evergreen Oak	110	547	13.2	Yes	As 160	As 160
169	Yew	46	96	5.5	No	N/A	Perimeter of RPA
170	Sycamore	95	284	9.5	Yes	Growing on an elevated position above a rock face with a restricted rooting area	Extended on south and east side to ensure that an adequate RPA is maintained.
171	Evergreen Oak	72	163	7.2	No	N/A	Perimeter of RPA
172	Yew	64	128	6.4	Yes	Reduced on north west side but increased on remaining circumference	Extended on south and east side to ensure that an adequate RPA is maintained
G3	Beech, Elm, Sycamore, Oak	N/A	N/A	N/A	No	N/A	N/A
173	P. Oak	46	96	5.5	Yes	Growing on an elevated position above a rock face with a restricted rooting area.	Extended on the north side to ensure that an adequate RPA is maintained.
174	Hornbeam	40	72	4.8	Yes	As 173	As 173
175	P. Oak	48	106	5.8	Yes	As 173	As 173
176	Hornbeam	60	113	6.0	Yes	As 173	As 173

177	P. Oak	45	92	5.4	Yes	Growing on an elevated position with an existing retaining wall within the RPA.	Extended on east side to ensure that an adequate RPA is maintained.
178	Beech	31	44	3.7	No	N/A	Perimeter of RPA

Section 4. Arboricultural Impact Assessment (AIA)

4.1 This section will assess the implications, if any, that the proposed development will have on the 45 trees in the tree schedule – Table B and provide advice on arboricultural actions that will mitigate any impact resulting from the proposed development.

4.2 This information can then be used to evaluate the impact of the development on the tree(s) and if any remedial measures are required.

4.3 Please note that Table D of the AIA has been evaluated for the demolition, construction and post development phases and on the assumption that the renovation work in this area will remain within the existing confines of the site. Any design changes after this time may require an amendment of the AIA.

<u>TABLE D</u>	Issues	Observations	Impact
<i>Design phase</i>	Category A	There are no trees in this category	
	Category B	The final design has not been confirmed but there are a small number of trees that will require additional measures when working within their root protection areas.	
	Category C	As Category B	
	Category U	For safety reasons these trees should be removed prior to the start of any demolition work.	
	Structures in RPA	To be confirmed	

	Services in RPA	To be confirmed	
	Changes to existing ground levels	To be confirmed	
<i>Construction phase</i>	Demolition	The Dismantling of the existing structures will require the installation of full tree protection measures prior to the start of any site work.	
	Site access	With the recommended tree protection measures the existing site access can be used for the construction vehicles and machinery.	
	Working areas	Some work will be required within the root protection areas therefore additional precautions will be required.	
	Site office, storage and welfare unit.	There are sufficient areas outside the root protection areas that are adequate.	
	Vehicle parking	There is adequate car parking.	
<i>Post development</i>	Tree pruning / maintenance	If the tree work in Table B is undertaken before the start of any dismantling work any further pruning will be limited to general maintenance.	
	Tree roots	Future root growth around the perimeter of the site may have an impact and the area should be inspected on an annual basis and any damage repaired promptly.	
	Shading / periodic nuisance	There will be some shading and issues with falling leaves. General maintenance should keep this issue within acceptable limits.	

KEY - Prior to any mitigation measures

	No impact from development and no mitigation measures required.
	Some impact which will require mitigation measures.
	Low impact which may require mitigation measures.
	High impact which will require an amended design or tree removal.

4.4 Any infringement of the root protection areas of the retained trees to allow a sufficient area for the construction work will require ground protection. This should comprise of a membrane laid on the soil surface with a 10cms covering of wood chippings and finally the installation of bog mats which can then be used for the passage of materials and site staff. Additional measures such as a cellular confinement system for new footpaths may need to be considered.

4.5 Due to the location the tree pruning and removal will not be externally visible.

Section 5. Recommendations.

5.1 To protect the trees root protection zones prior to any ground or construction work protective fencing as shown in Appendix 2 must be erected at an adequate distance from the trees. The minimum distances between the base of the main stem and the fencing are shown in Section 3, Table C under the RPA 2 column. After consultation and agreement with the local planning authority if the fence cannot be erected at the recommended distance from the tree it should be erected at the maximum distance possible and ground protection measures as stated in 4.4 above must be implemented.

5.2 All tree work must be completed by suitably qualified and competent arborists in accordance with the guidelines in BS3998:2010 Tree Work – Recommendations and current good practice.

5.3 No burning of waste products must be undertaken in the vicinity of retained trees.

5.4 To minimise any ground disturbance the removal of all stumps within the RPA's of retained trees must be undertaken by a stump grinder. Adequate ground protection with the use of bog mats to prevent soil compaction is usually required.

5.5 Soil contamination from cement mixing and washing must be avoided. If due to the topography of the land there is a risk of any contamination entering the RPA's and vicinity of retained trees adequate precautions to contain all pollution e.g. heavy duty plastic sheeting and sand bags, must be implemented.

5.6 Prior to any tree work the structure of the individual trees and surrounding area should be checked by a suitably competent and qualified person for protected species such as nesting birds and bats. If possible all tree work operations should be undertaken when the minimum disturbance is caused to the local wildlife.

5.7 The construction of new footpaths, parking and/or turning areas within root protection zones should be avoided. If this is unavoidable any works within these zones will require the installation of a cellular confinement system. It would be advisable to obtain the advice of a suitably qualified arborist prior to this type of work.

Section 6. Conclusion

6.1 If the recommendations in BS5837:2012 and this report are followed due to the location of the trees and the utilisation of the existing buildings footprint for the new visitor centre this development should not have a significant impact on the majority of the existing trees. Additional precautions such as ground protection will be required for any work within the root protection areas of retained trees.

Section 7. References.

British Standard 5837 : 2012 Trees in relation to design, demolition and construction.

British Standard 3998 : 2010 Tree Work – Recommendations.

Tree surveys – A guide to good practice (2005). Fay, Dowson & Helliwell.

Principles of tree hazard assessment and management (1999). Lonsdale.

National Joint Utilities Group Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees. Volume 4: Issue 2

<https://treeterms.co.uk>

Appendix 1: Terms used in Table B Tree and root protection area schedules

Tree no.	- tree tag / plan numbers
Tree name	- Common English name
Height	- Height in metres
Stem diameter climbing plants,	- Stem diameters measured as per BS5837:2012 recommendations. If due to climbing plants, dense vegetation or restricted access a direct measurement is not possible the diameter will be estimated.
Age class	- SM - Semi mature EM - Early mature M - Mature LM - Late mature
Crown spread	
Low branches	- Crown radius in metres to North, South, East and West - Distance to the lowest branch from ground level. - N/A - not applicable due to tree form.
RPA 1	- Recommended root protection area in square metres.
RPA 2	- Recommended root protection area radius measured from the base of the tree.
BS category	- refer Table 1 for classification and further information.

Appendix 2

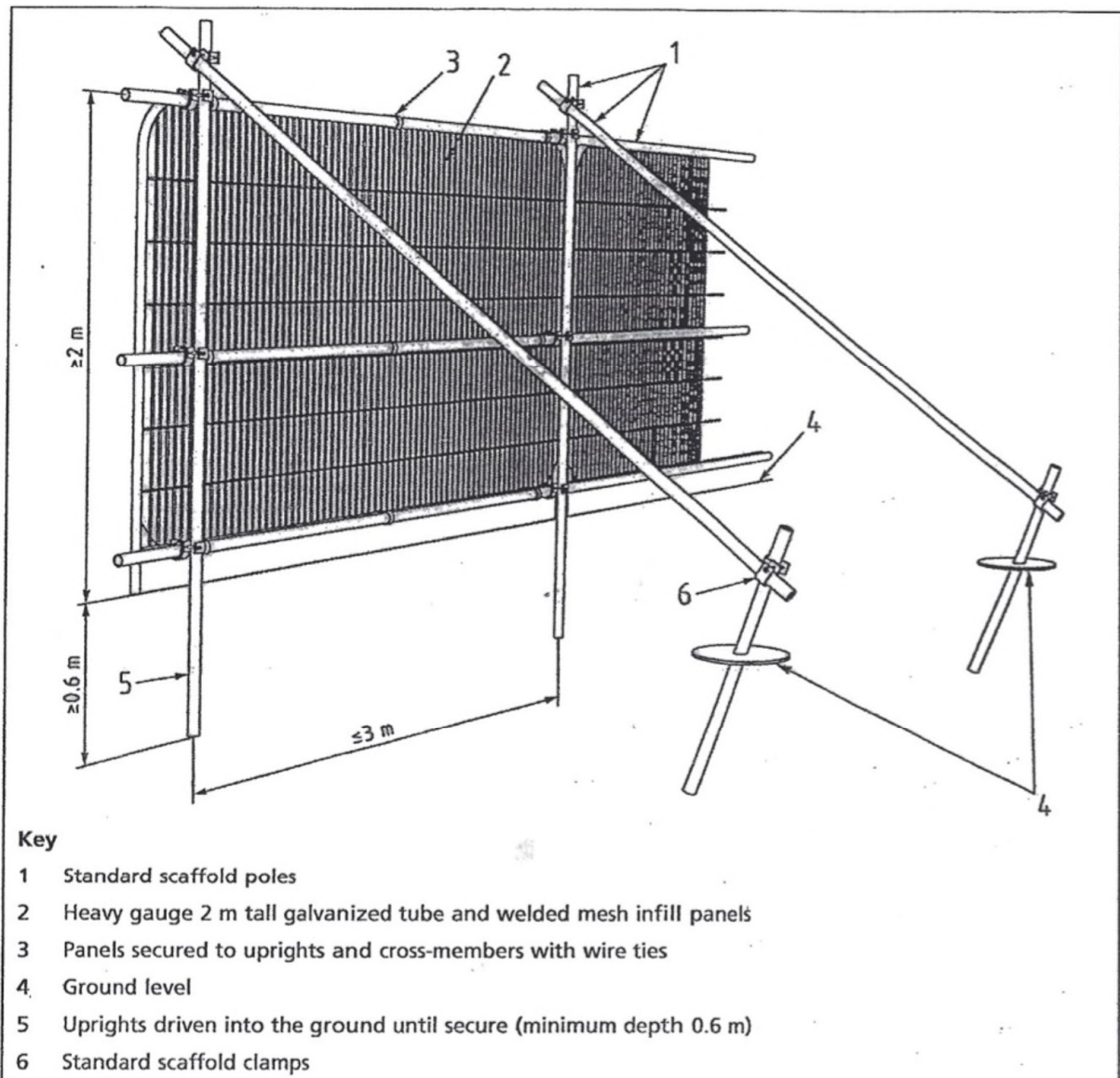
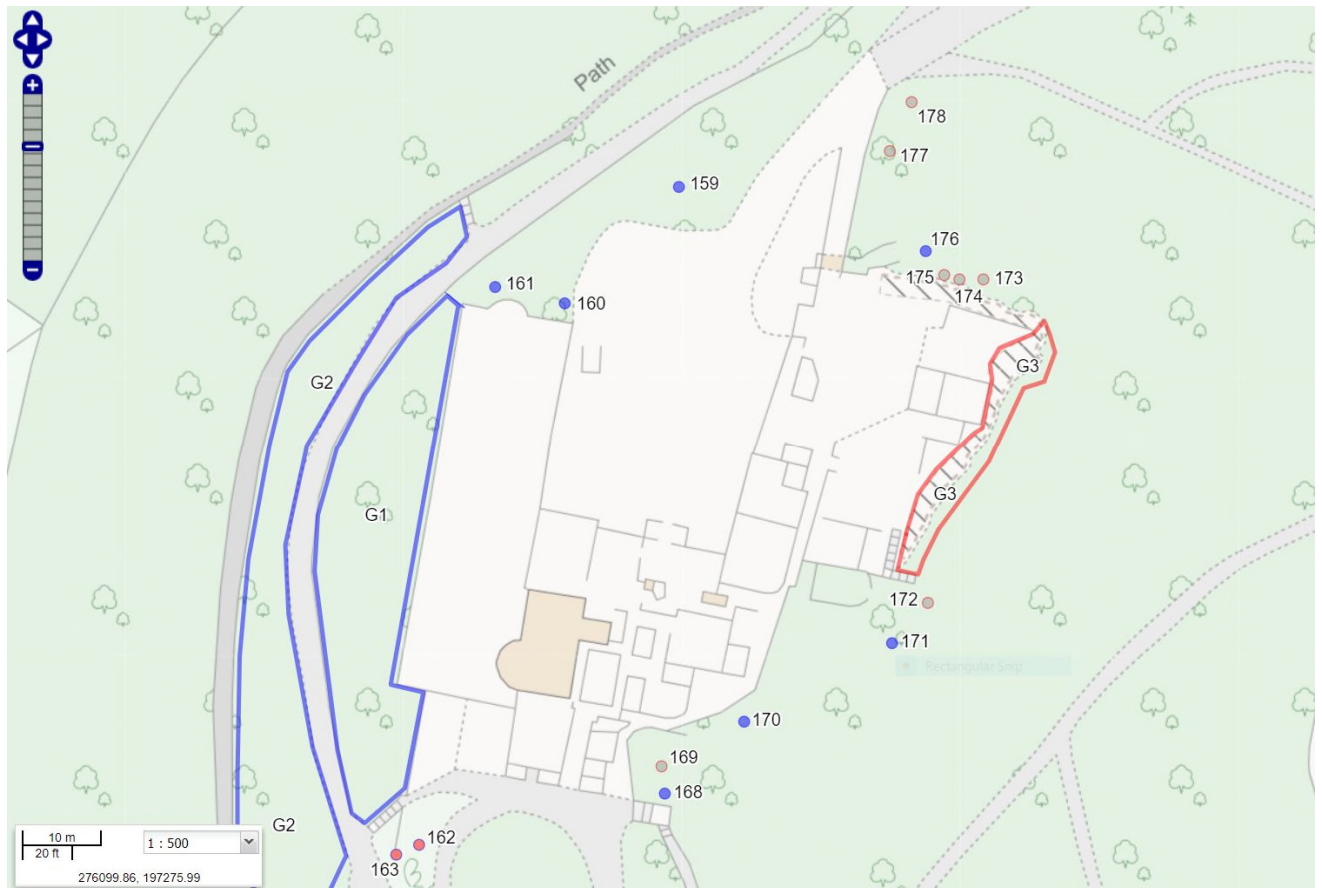
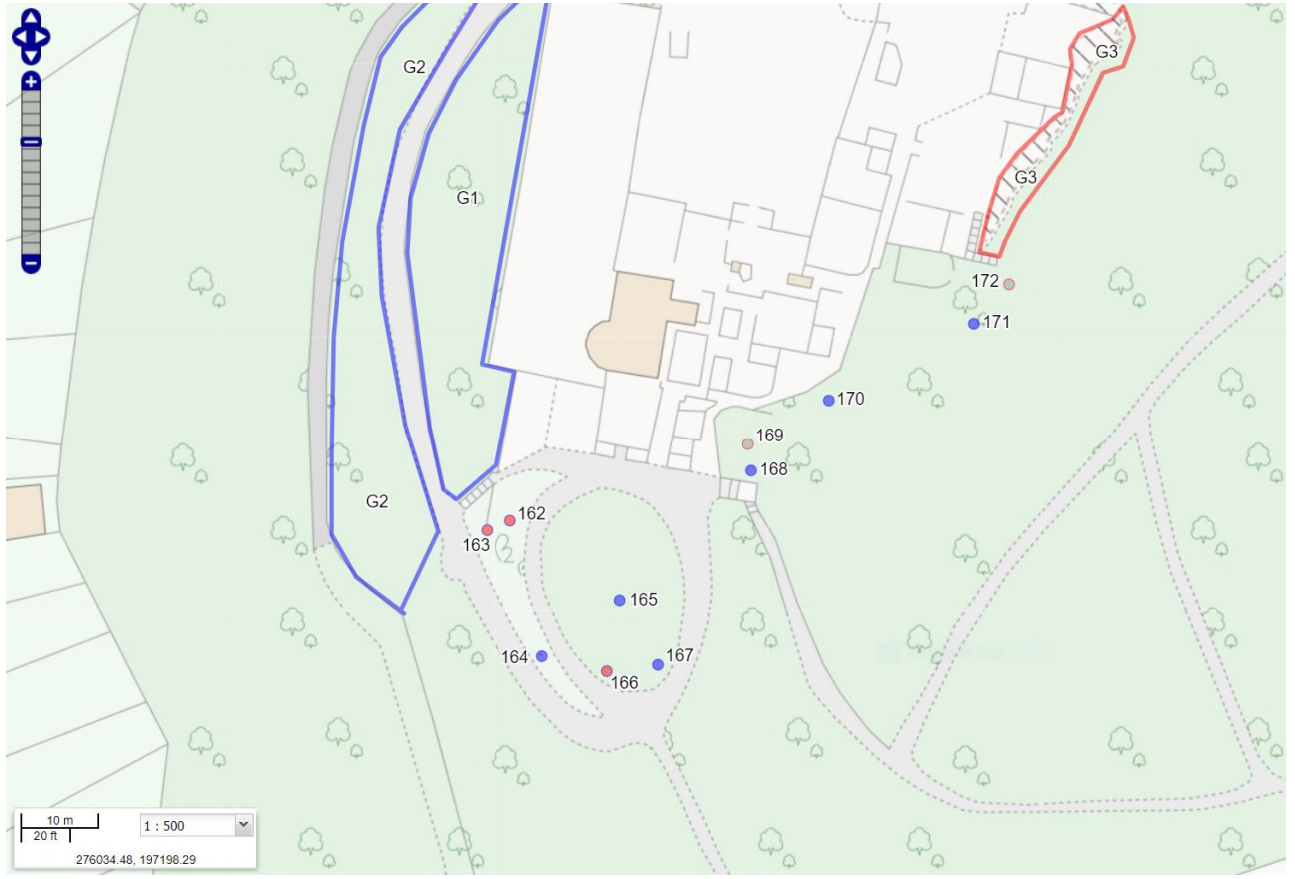


Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (Including subcategories where appropriate)	Identification on plan
Trees unsuitable for retention (see Note)		
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality	
NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve;		
1 Mainly arboricultural qualities 2 Mainly landscape qualities 3 Mainly cultural views 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
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 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 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
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 with no material conservation or other cultural value



PLAN 1



PLAN 2

