

BS5837:2012 Tree Survey & Arboricultural Constraints Report

Location: Visitor Centre, Gnoll Country Park, Neath

SA11 3DT

Grid Ref. SS76492 97490

w3w:case.engine.smug

Client: Neath Port Talbot CBC / Andrew Scott

Consultant / Surveyor: Nick Thomas

May 2023 (Updated August 2023)

Tree Survey &
Arboricultural Constraints Report
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Summary

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 visitor centre 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 45 individual trees 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 No additional information was provided prior to the original survey in May 2023 and the preparation of this report. Existing and proposed site plans were provided on the 1st August 2023 and this report has been updated accordingly.

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 16th and 17th May 2023 and was undertaken from ground level with no climbing inspections involved. The weather conditions during the survey were calm with sunny periods.

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 visitor centre is located at the heart of the Gnoll country park and is a vital part of the parks overall attraction and facilities. The trees surrounding the visitor centre provide a natural screen and aesthetically help in integrating the building into the natural landscape.

2.3 Root morphology. The root spread of the trees surrounding the visitor centre will have been influenced and restricted by the footpaths and their impermeable surface which access and surround the visitor centre and car park. Some root damage and soil compaction will have occurred during the construction of the footpaths and post construction the growing environment beneath these footpaths will be compacted and inhospitable for tree roots.

In all probability the roots will have exploited the undisturbed ground away from the visitor centre 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 45 trees 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	11	0	0	0	11
C	28	0	0	0	28

U	6	0	0	0	6
Total A,B,C,U	45	0	0	0	45

2.7 Soil assessment. The site's soil was assessed by desktop analysis using the Soilscales website, www.landis.org.uk/soilscales/, 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			
081	Alder	14	68	M	4.4	5.1	5.0	8.0	2.5	U	Large basal cavity, low vigour with decay on upper stem, remove tree
082	Sitka Spruce	19	51	EM	5.0	6.5	4.9	1.8	4.2	C1	Low vigour and poor annual extension growth
083	Norway Spruce	18	59	EM	5.2	6.7	5.0	5.2	2.5	B1	As 082
084	Norway Spruce	17	51	EM	5.4	1.9	1.5	2.2	4.0	C1	As 082. Suppressed by larger, adjacent trees
085	Norway Spruce	15	37	SM	2.1	0.8	3.8	2.0	3.5	C1	As 082. Suppressed by larger adjacent trees
086	Norway Spruce	19	50	EM	6.4	5.3	1.7	1.8	4.0	C1	
087	Norway Spruce	17	27	SM	6.9	2.1	1.1	1.8	5.0	C1	As 082. Suppressed by larger adjacent trees
088	Norway Spruce	19	58	EM	2.9	4.6	4.9	3.3	5.0	C1	As 082. Suppressed by larger adjacent trees
089	Sitka Spruce	18	29	SM	3.3	2.0	1.3	2.1	10	U	Dying and suppressed by larger adjacent trees
090	Sessile Oak	14	18,37 43	EM	4.5	7.5	10	3.0	3.0	B1	Multi stemmed with an unbalanced crown
091	Sitka Spruce	19	50	EM	6.0	4.0	2.4	1.9	3.5	C1	Low vigour and poor extension growth with an unbalanced crown.

092	Sessile Oak	17	103	M	7.1	5.5	5.3	8.0	2.0	B1	Remove all deadwood above 3cms diameter at point of origin
093	Sitka Spruce	18	26	SM	1.7	1.5	1.9	1.6	10.0	C1	Whip type tree which should be removed to allow the adjacent Oak trees to develop
094	Sitka Spruce	18	24	SM	1.9	1.5	1.2	1.6	7.0	C1	As 093
095	Sitka Spruce	18	33	SM	1.1	2.0	2.2	1.9	6.0	C1	As 093
096	Sessile Oak	18	15	SM	0	1.6	3.1	1.0	5.0	U	Suppressed and a very poor form, remove tree.
097	Sessile Oak	18	40	EM	0	5.2	9.0	1.7	3.0	C1	Prune to improve form of crown by reducing crown on south side by 2 meters
098	Sessile Oak	17	20	SM	1.3	0	3.3	3.1	9.0	C1	Whip type tree with a low vigour
099	Sessile Oak	18	19	SM	3.0	1.0	3.5	1.3	5.0	C1	As 098
100	Sitka Spruce	18	41	EM	3.0	1.8	3.7	3.5	7.0	C1	Low vigour and poor extension growth
101	Sessile Oak	17	34	SM	1.2	6.3	5.8	0	3.0	B1	Remove rubbing branch at 4 metres above ground level and reduce crown by 2.5 meters on east and south side to improve form
102	Sessile Oak	18	50	EM	4.4	4.0	5.8	6.7	3.0	B1	Lift crown on western side to 5 metres above ground level
103	Sessile Oak	7	21	SM	2.1	3.1	1.8	4.8	4.0	C1	Poor form and suppressed by adjacent trees.
104	Sitka Spruce	18	46	EM	2.1	3.4	5.0	3.0	4.0	C1	Low vigour and weak extension growth
105	Sessile Oak	17	29	SM	4.7	3.5	2.0	3.2	3.5	B1	Unbalanced crown
106	Sessile Oak	17	22,46	EM	6.0	2.8	3.9	5.8	3.5	B1	As 104, reduce crown on south side by 2 metres to improve form
107	Sessile Oak	7	20	SM	3.0	6.0	4.1	1.3	2.5	C1	Poor form and suppressed by adjacent trees
108	Sessile Oak	9	32	SM	6.0	5.6	2.2	2.3	4.0	C1	Low vigour and sparse foliage

109	Goat Willow	7	24	M	6.5	3.9	0	2.5	2.0	U	Failed root system, remove tree
110	Goat Willow	9	28,31 60	LM	3.2	9.0	7.5	5.0	2.0	U	Weak structure, remove tree
111	Sitka Spruce	9	24	SM	1.1	4.1	2.0	0	3.0	C1	Whip type tree, unbalanced crown and suppressed by adjacent trees
112	Sitka Spruce	19	63	EM	1.5	6.0	6.4	4.7	2.0	C1	
113	Sitka Spruce	19	41	EM	5.0	4.3	2.7	2.5	3.0	C1	
114	Sitka Spruce	19	40	EM	3.2	2.5	5.5	3.1	4.5	C1	
115	Norway Spruce	16	55	EM	2.2	2.8	5.6	5.1	1.5	C1	
116	Sitka Spruce	16	22	SM	1.8	1.5	1.0	0.9	10.0	U	A dying whip type tree, remove tree
117	Sitka Spruce	17	47	EM	2.0	1.5	3.3	4	3.0	C1	Remove tree to allow 118 to develop
118	Sessile Oak	16	41	EM	4.5	2.9	4.0	6.4	2.0	B1	
119	Goat Willow	9	32,39	M	3.7	0	8.0	4.8	2.0	C1	
120	Silver Birch	10	28	EM	5.4	3.5	1.0	3.9	2.0	B1	
121	Goat Willow	10	18,28 39	LM	2.0	5.5	6.0	3.0	2.5	C1	
122	Hawthorn	9	12,15 18	EM	3.9	4.0	3.0	2.1	2.0	C1	
123	Ash	9	50	EM	7.5	7.5	7.5	5.5	3.0	B1	
124	Goat Willow	9	33,35 35	LM	4.9	6.9	7.6	1.0	1.5	C1	Multi stemmed(3) with 2 major stems over bench and duck feeding area, remove the 2 stems over the bench and feeding area.
125	Alder	9	32,33 34	EM	4.6	3.9	5.2	4.2	2.0	B1	Decay in upper region of southern stem, reduce in height by 2 metres

NOTE: Prior to its removal tree 081 will require a bat survey.

Remove all deadwood over 2.5cms diameter at its point of origin on all retained Sitka and Norway Spruce.

There is an untagged Goat Willow between trees 109 and 110 which should be removed.

TABLE C

Tree no.	Species	Mean stem dia. (mm)	RPA 1 (m ²)	Minimum radial protection (m)		Justification for RPA modification	Position of protective barrier
				RPA 2	Modified		
081	Alder	68	212	8.2	No		N/A
082	Sitka Spruce	51	121	6.2	Yes	Effect of tarmac path on root spread on north side of tree	Southern edge of tarmac path on the north side of the tree
083	Norway Spruce	59	160	7.1	Yes	As 082	As 082
084	Norway Spruce	51	121	6.2	Yes	As 082	As 082
085	Norway Spruce	37	64	4.5	Yes	As 082	As 082
086	Norway Spruce	50	113	6.0	Yes	As 082	As 082
087	Norway Spruce	27	34	3.3	Yes	As 082	As 082
088	Norway Spruce	58	155	7.0	No	Within RPA of group	As 082
089	Sitka Spruce	29	40	3.5	No		N/A
090	Sessile Oak	60	163	7.2	No	Within RPA of group	As 082
091	Sitka Spruce	50	113	6.0	No	Within RPA of group	As 082
092	Sessile Oak	103	483	12.4	Yes	Effect of tarmac footpaths on northern and western side of tree	As 082
093	Sitka Spruce	26	32	3.2	No	Within RPA of group	As 082

094	Sitka Spruce	24	27	2.9	No	Within RPA of group	As 082
095	Sitka Spruce	33	51	4.0	No	Within RPA of group	As 082
096	Sessile Oak	15	10	1.8	No		N/A
097	Sessile Oak	40	72	4.8	No	As per RPA 2 column	South side of tree
098	Sessile Oak	20	18	2.4	No	Within RPA of group	South side of tree
099	Sessile Oak	19	17	2.3	No	Within RPA of group	South side of tree
100	Sitka Spruce	41	78	5.0	No	Within RPA of group	South side of tree
101	Sessile Oak	34	54	4.1	Yes	Effect of tarmac footpath on south side of tree	South side of tree
102	Sessile Oak	50	113	6.0	Yes	Effect of tarmac footpath on south side of tree	South side of tree
103	Sessile Oak	21	22	2.6	No	Within RPA of group	South side of tree
104	Sitka Spruce	46	98	5.6	Yes	Effect of tarmac footpath on south side of tree	South side of tree
105	Sessile Oak	29	40	3.5	No	Within RPA of group	South side of tree
106	Sessile Oak	51	121	6.2	Yes	Effect of tarmac footpath on north side of tree	North, south and western side of tree
107	Sessile Oak	20	18	2.4	Yes	Effect of tarmac footpaths on northern and southern side of tree	Edge of tarmac footpaths
108	Sessile Oak	32	48	3.9	Yes	As 107	As 107

109	Goat Willow	24	27	2.9	No		N/A
110	Goat Willow	73	173	7.4	No		N/A
111	Sitka Spruce	24	27	2.9	No		South side of tree
112	Sitka Spruce	63	182	7.6	Yes	Effect of footpath around visitor centre	South side of tree along edge of footpath
113	Sitka Spruce	41	78	5.0	No	Within RPA of group	South side of tree
114	Sitka Spruce	40	72	4.8	No	Within RPA of group	South side of tree
115	Norway Spruce	55	137	6.6	No		South side of tree along edge of footpath
116	Sitka Spruce	22	23	2.7	No		N/A
117	Sitka Spruce	47	102	5.7	No		Southern and western side of tree
118	Sessile Oak	41	78	5.0	No		Western and northern side of tree
119	Goat Willow	51	117	6.1	Yes	Effect of footpath around visitor centre	Southern edge of footpath
120	Silver Birch	28	38	3.4	Yes	Effect of footpath around visitor centre	Southern edge of footpath
121	Goat Willow	52	121	6.2	Yes	Effect of footpath around visitor centre	Southern edge of footpath
122	Hawthorn	27	32	3.2	Yes	Effect of footpath around visitor centre	Southern edge of footpath
123	Ash	50	113	6.0	Yes	Effect of footpath around visitor centre	Southern edge of footpath

124	Goat Willow	60	163	7.2	Yes	Effect of surrounding footpaths	Southern edge of footpath
125	Alder	57	142	6.7	Yes	As 124	As 124

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 new visitor centre will be on the same or very similar footprint to the existing building. 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 development will require the removal of tree 102.	
	Category C	The development will require the removal of tree numbers 99,100,103,and 104.	
	Category U	For safety reasons tree numbers 81,89,96,109,110 and 116 should be removed prior to the start of any demolition work.	
	Structures in RPA	All RPA infringements are minimal. With offsetting and the correct working practices as specified in BS5837 the RPA infringements are within acceptable limits.	
	Services in RPA	There are no service routes within the RPA's	

	Changes to existing ground levels	There are no significant changes to the existing ground levels within the RPA's	
<i>Construction phase</i>	Demolition	The demolition of the existing visitor centre 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 demolition work any further pruning will be limited to general maintenance.	
	Tree roots	Future root growth is unlikely to affect the building but the access paths 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 number and location of the remaining trees this development will have little arboricultural impact on the local landscape.

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.

5.8 On completion of the development it would be beneficial to the site and surrounding area if an appropriate mixture of tree species was planted. This new planting will provide a natural screen, visual diversity, habitat for wildlife and a broader age class that currently exists.

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 any impact on the majority of the retained 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

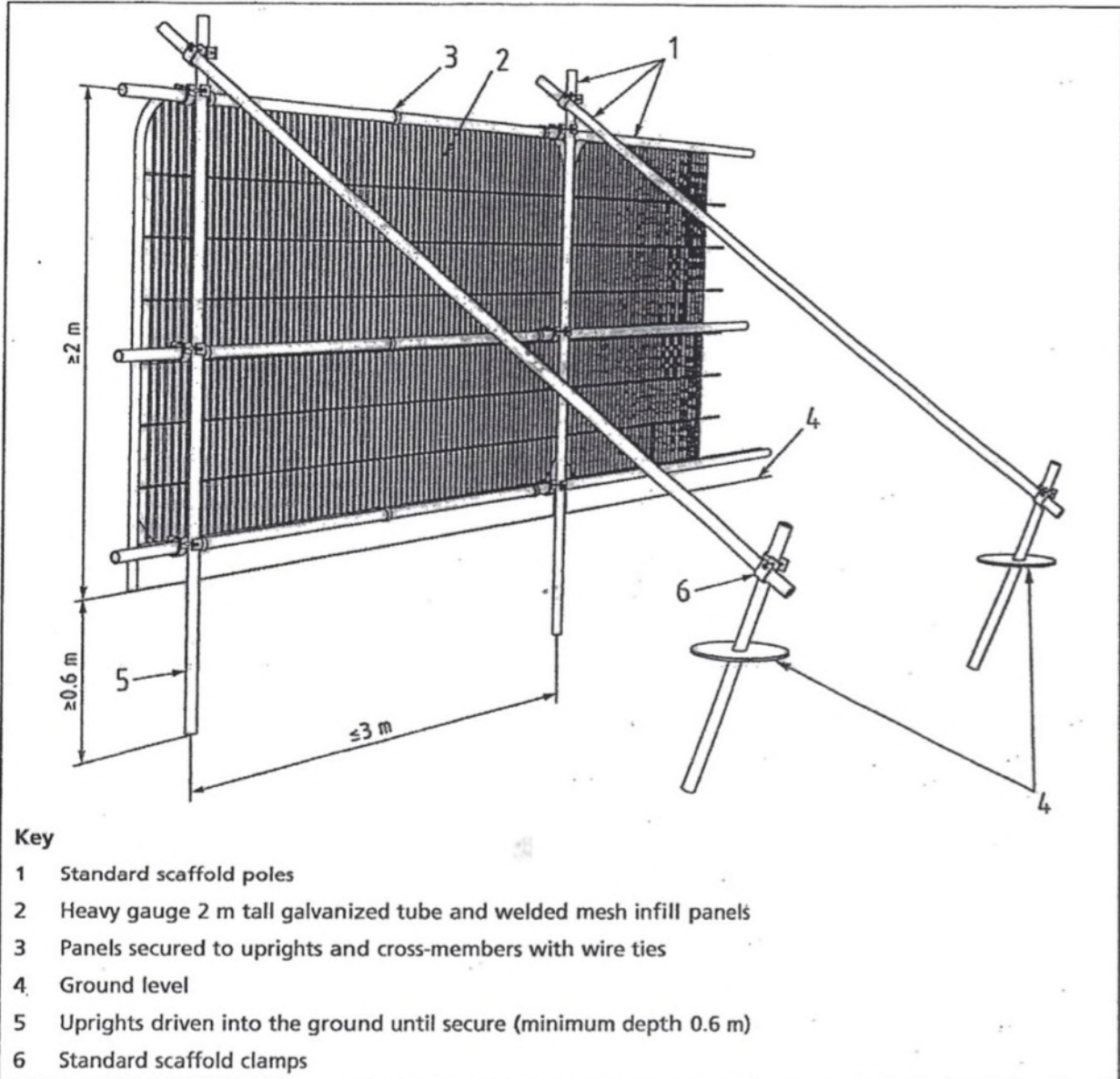


Table 1 Cascade chart for tree quality assessment

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	
NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve;		
Trees to be considered for retention		
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	1 Mainly arboricultural qualities 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) 2 Mainly landscape qualities Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features 3 Mainly cultural views including conservation Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	
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 Trees with material conservation or other cultural value	
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	

Site plan