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BS5837:2012 Tree Survey, Arboricultural Report and Tree Constraints Plan

Rothersdyke Retreat & Cabins,
Rothersdyke House,
Egremont,
Cumbria,
CA8 7AR.

Report undertaken by: Phil Scott-Collins Arboricultural Consultant for ROWAN Tree Surveys

Report Number: 0126

Date: 21st April 2023

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ARBORICULTURALIST'S REPORT

Terms of Reference

1.1 This report was requested by Dan Clements of ADITUS Architectural Services on behalf of his client Mrs Chelsea Wright of Rothersdyke House, Egremont, Copeland, Cumbria, CA22 2UD.

1.2 The instruction to carry out the tree survey and provide a report at Rothersdyke Retreat & Cabins, Rothersdyke House was received in an email from Dan Clements dated 29th March 2023.

1.3. The purpose of this report is to:

Record the current details, including dimensions and condition of the trees found on the site and categorise them using criteria outlined in BS5837:2012 - Trees in relation to design, demolition and construction – Recommendations are still valid.

Provide a tree constraints plan that identifies any constraints to development presented by the trees to include root protection areas for the retained trees as described in the British Standard.

Provide guidance detailing arboricultural constraints to development and factors to be considered during the detailed design of the proposed development.

Limitations

2.1 This report is valid for:

no more than two years from the date of that assessment, or
until such time as any work is carried out at the site, either in accordance with any remedial action prescribed or for other reasons which may be outside my control, or until the site is re-surveyed whichever is the sooner.

2.2 The content and layout of this report are owned by the author. This report may not be copied or used without the author's agreement for any purpose other than the purpose indicated in this report.

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2.3 This is an arboricultural report and as such, no reliance should be placed on comments relating to buildings or soil data.

2.4 My report is not, nor should be taken to be, a thorough assessment of the health and condition of the trees on or adjacent to the site: if such an assessment is required then it is recommended that a separate tree inspection be carried out to comply with the land owner's overall duty of care and to satisfy health and safety requirements. However, any safety implications identified during the inspection are of course noted within this report.

2.5 My report represents the analysis of my arboricultural observations following an external assessment of the trees from ground level only. No samples were collected for analysis, and no decay detection devices (such as an increment borer, a micro-resistance recording drill or sonic tomograph) were used during my assessment.

The Site

3.1 I carried out the survey on 17th April 2023 and collected data regarding trees and vegetation including the species, age class, dimensions, condition and category for retention.

3.2 The area to be surveyed had previously been highlighted on a map of the site provided by ADITUS Architectural Services which was covered by the topographical survey also provided by ADITUS Architectural Services.

3.3 The site is an area of woodland to the south east of Rothersdyke House.

3.4 Rothersdyke House is located approximately 2 miles south of Egremont and is accessed off the B5345.

3.5 There is a gradual downward slope from north west to south east.

3.6 It is proposed to erect 3 cabins/pods with associated paths and car parking as well as new vehicular access off the public highway.

3.7 An email enquiry to Cumberland Council has highlighted that the site is not located within a Conservation Area and that none of the trees are protected by a Tree Preservation Order. Precise details can be confirmed by contacting Cumberland Council.

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Tree Survey Methodology

4.1 The location of the trees has been plotted in line with those trees recorded on the topographical survey provided by ADITUS Architectural Services. However, a number of additional trees have been plotted using a GPS handheld device where considered prudent. The device is accurate to 1-2m.

4.2 All trees inspected were categorised using the British Standard BS5837:2012 and the attached plan shows tree positions, numbers, retention categories and tree Root Protection Areas (RPA). A schedule of the trees is included which provides details of species, dimensions, physiological and structural condition, age category, remaining life expectancy, retention values, comments and recommendations and root protection areas.

4.3 Tree dimensions were recorded Including:

Height – gathered using an electronic clinometer or estimated.

Height of first branch – height and direction of the first significant branch has been recorded where appropriate or practicable to inform on crown/stem ratio and shading.

Stem Diameter - measurements taken at 1.5 metres above ground level (complying with requirements for BS5837). Girth data was gathered using a metric diameter tape or estimated where access was restricted.

Tree crown spread - measurement of the four cardinal points to provide information to be used with the arboricultural constraints plan.

Crown height – The average crown height clearance above ground level has been recorded to inform on ground clearance, crown/stem ratio and shading.

4.4 As stated the trees surveyed were categorised using the method explained in BS5837:2012. This method categorises individual trees, groups and woodlands in a systematic way. Each tree or group is identified on the attached plan.

4.5 Initially it is determined if the tree should be regarded as a U category tree. U category trees are those that are low value trees that have little future due to poor physiological and structural condition.

4.6 Other trees are graded A, B or C. The initial category should reflect the trees value in making an important contribution to the amenity of the site over a period of time. The higher the category the longer the perceived time period.

4.7 A sub category is included 1, 2 or 3. This sub category reflects the type of value the surveyor feels the tree presents in regards its value to 1 – arboricultural, 2 – landscape, 3 – cultural or conservation.

Category 'U' . (Dark Red): Those in such a condition that they cannot be realistically be retained as living trees in the context of the current land use for longer than 10 years. Trees within this category are:

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;

Trees that are dead or are showing signs of significant, immediate or irreversible overall decline;

Trees infected with pathogens of significance to the health and or/safety of other trees nearby trees or very low quality trees suppressing adjacent trees of better quality.

Category 'A' . (Green): trees whose retention is most desirable and are of high quality and value. These trees are considered to be in such a condition as to be able to make a lasting contribution of at least 40 years and may comprise:

1. Trees which are particularly good examples of their species especially rare or unusual, or essential components of groups or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue);

2. Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features,

3. Trees, groups or woodlands of significant conservation, historical, commemorative or other value (eg. veteran trees or wood-pasture trees).

Category 'B' . (Blue): trees whose retention is considered desirable and are of moderate quality. These trees are considered to be in such a condition as to make a significant contribution of at least 20 years and may comprise:

1. Trees that might be included in category A, but because of their numbers or slightly impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage), are downgraded in favour of the best individuals;

2. Trees present in numbers such that they form distinct landscape features and attract a higher collective rating than they would as individuals or trees occurring as collectives but situated so as to make little visual contribution to the wider locality;

3. Trees with material conservation or other cultural value.

Category 'C' . (Grey): trees that could be retained and are considered to be of low quality. They have a life expectancy of at least 10 years or are young trees with a stem diameter below 150mm and may comprise:

1. Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories;

2. 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 screening benefits;

3. Trees with no material conservation or other cultural value.

4.8 In the assessment, particular consideration has been given to the following when considering the appropriate BS Category and Sub-Category allocation:

i. the health, vigour and condition of each tree;

ii. the presence of any structural defects in each tree and its remaining contribution in years (i.e. future life expectancy);

iii. the size and form of each tree and its suitability within the context of a proposed development for the land use;

iv. the location of each tree relative to existing site features, e.g. its value as a screen or as a skyline feature.

4.9 Age class is assessed according to the age class categories referred to in BS 5837.

Y: Young trees**.**

SM: Semi-mature, trees less than 1/3 life expectancy.

EM: Early-mature trees up to 1/2 life expectancy.

M: Mature trees up to 2/3 life expectancy.

OM: Over-mature, declining or moribund trees of low vigour.

V: Veteran trees

4.10 Trees were assessed for vigour and any signs of stress or ill health including, but not limited to, presence of pests, diseases or pathogens and expected tree growth rates for species and age of tree. The physiological condition of the tree, or group of trees, has been referred to as one of the following:

Good: Trees with annual growth rates as expected for species and no signs of pests or disease. A sound tree, trees needing little, if any, attention.

Fair: Trees with annual growth rates that appear below average for species and age, presence of minor pest or disease that can be remedied or in the early stages of stress, from which it may recover.

Poor: Trees with annual growth rates well below expected for species and age with possibility of infestation of pests or pathogen present and physiological defects or stressed such that it would be very expensive and inappropriate to retain.

Dead: A tree or trees, with no live growth. However, this could also apply to those trees that are dying and will be unlikely to recover, or are / have become dangerous.

4.11 The structural condition of the trees, or groups of trees were assessed, from ground level only, for any structural defects including, but not limited to, cracks, cavities, decay, previous wounding and root movement.

The categories given for structural condition are:

Good: No visible significant defects noted;

Fair: Minor defects noted that can be remedied through tree surgery works;

Poor: Significant defects noted that predispose the tree to structural failure.

4.12 Life expectancy is the estimated useful life expectancy based on current known factors and under existing circumstances. It is however dependant on any changes in the existing site conditions including environmental factors and future tree management.

Tree Survey Results

5.1 The site survey highlighted 33 individual trees indicated on the map.

5.2 The 33 individual trees have been categorised according to Table 1 of BS5837 2012 Trees in relation to design, demolition and construction - Recommendations:

Category	No of Trees	Definition
A	0	Those of a high quality with an estimated remaining life expectancy of at least 40yrs
B	6	Those of a moderate quality with an estimated remaining life expectancy of at least 20yrs
C	22	Those of a low quality with an estimated remaining life expectancy of at least 10yrs, or young trees with a stem diameter below 150mm.
U	5	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 yrs.

5.3 The site has significant tree cover with a range of species, age, size, condition and quality which contribute to the overall amenity of the area.

5.4 The tree constraint plan shows the constraints imposed by the trees both above and below ground and should be used to inform any site layout design.

5.5 No category A trees have been identified on the site. However, there are 6 category B trees: those of a moderate quality with an estimated remaining life expectancy of at least 20 years. 21 trees were graded as category C and 6 trees as category U.

5.6 Many of the trees have dieback in the tops of their crowns to varying degrees. The bottom of the site adjacent to the B5345 appears that it may be waterlogged for periods of the year which may explain the dieback of trees T1, T2 and T5; however, there seems to be no obvious reason for the dieback of the trees further up the slope.

5.7 Trees T13 and T24 are two Holly groups with multiple stems. It is suggested that if these trees are to be retained their crown spread is treated as their RPA.

5.8 In addition to those trees included in the survey there are several smaller trees and areas of scrub which have not been included.

Trees & Development

6.1 The integration of trees within any development relies heavily on careful planning when locating properties, extensions or any buildings and retaining trees nearby. Provided the following points are considered, a harmonious relationship between people, their houses, buildings and gardens and existing trees is possible.

6.2 Any development proposal should consider that trees identified as retention categories A, B or C are generally those that should be retained. However, category C trees will usually not be retained where they would impose significant constraint on development. The proposed new vehicular access to the site may require the removal of tree T5, an Oak which has been graded as category B despite some dieback in the upper crown.

6.3 BS5837 calls for Root Protection Areas to be shown on the plan accompanying the planning application. The survey data and tree positions help inform the extent of tree Root Protection Areas (RPA) to ensure that a tree is not harmed by development activities. This area is usually enclosed by a construction exclusion zone for the duration of any works. BS5837 defines the root protection area as *'the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability'*. For any groups of trees, the data is an average for the trees within the group. However, you should be aware that Root Protection Areas will overlap considerably due to the proximity of the trees to each other within

groups. The tree constraints plan (TCP) highlights that the RPAs of the trees occupies a large percentage of the site. Accordingly, any construction within the site and within the RPAs will have to be carefully considered.

6.4 There are above ground constraints that may limit development close to trees. This includes the crown spread of the tree and, in some cases, it may be necessary to increase the extent of tree protection barriers to contain and thereby protect the spread of the crown. This consideration should also allow for future growth particularly when a significant number of the trees have not reached maturity and still have significant future growth potential. Additional considerations are the obstruction of sunlight or daylight to the development.

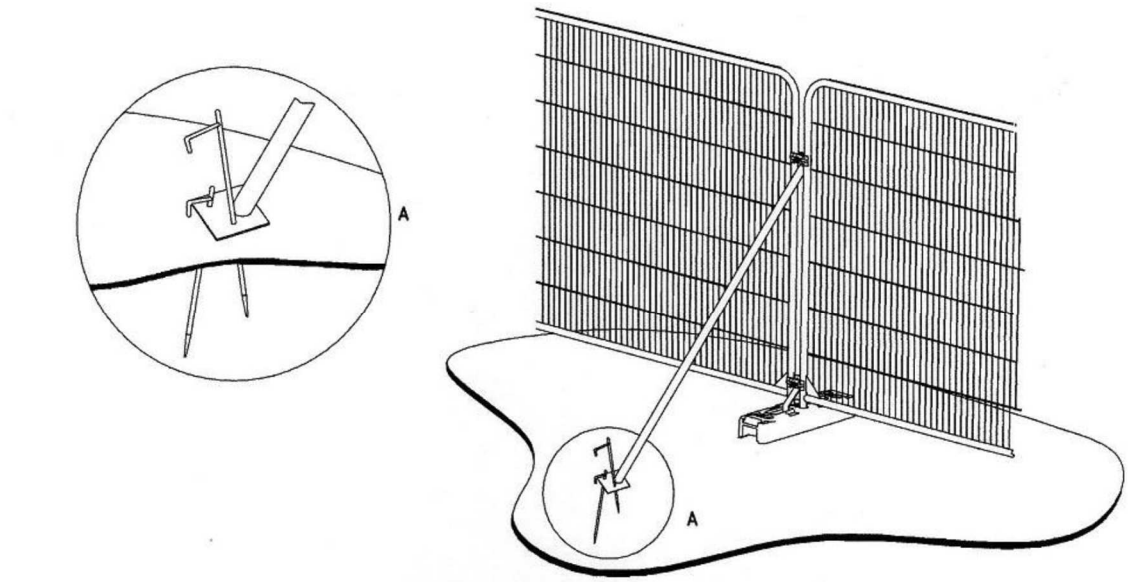
6.5 Section 5.3.1 of BS 5837 also calls for the inclusion of shading caused by retained trees where they would cause unreasonable obstruction of sunlight or daylight to a development. This is represented by a segment with a radius from the centre of the stem equal to the height of the tree, drawn from north west to east, indicating the shadow pattern throughout the main part of the day. This has currently been omitted from the TCP given the nature of the proposed development.

6.6 All the trees proposed for retention will need to be rigorously protected with protective fencing and ground protection in line with BS 5837:2012 throughout the development period to avoid them being accidentally damaged. Protective barriers should be erected prior to any work commencing to create a construction exclusion zone (CEZ).

6.7 The default specification for protective barriers is a vertical and horizontal scaffold framework, well braced to resist impacts with welded mesh panes securely fixed onto this framework. The vertical tubes should be spaced at a maximum interval of 3m and driven securely into the ground.

6.8 Where site circumstances and associated risk allow, an alternative specification should be prepared by the arboriculturalist and agreed with the Local Planning Authority. For example, 2m tall welded mesh panels on rubber or concrete feet, stabilised on the inside and joined together using a minimum of two anti-tamper couplers, installed so they can only be removed from inside the fence.

Example of tree protection barrier – support struts on tree side



a) Stabilizer strut with base plate secured with ground pins

6.9 Prior to commencing any arboricultural work to trees, it is essential to liaise with the Local Planning Authority as they may be protected by a Tree Preservation Order or within a Conservation Area.

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Tree ID	Common Name	Latin Name	Maturity	Height (m)	Height and direction of first significant branch (m)	Number of Stems	Stem diameter (DBH) (mm)	Spread - N (m)	Spread - E (m)	Spread - S (m)	Spread - W (m)	Average crown height clearance	Physiological Condition	Structural condition	Category	Life Expectancy	Comments & Recommendations	RPA Radius (m)	RPA (m2)
T1	Sycamore	Acer pseudoplatanus	Mature	11	2SW	1	550	4	6	6	4	2	Decline	Poor	U	<10 yrs	Very poor specimen. Significant dieback. Ivy growth. Kretzschmaria deusta (decay fungus) present at base. Fell	6.6	137
T2	Turkey Oak	Quercus cerris	Mature	14	4SW	1	650	6	7	7	5	4	Poor	Fair	C1	20 to 40 yrs	Dead stubs at top of stem. Reduced vigour. Minor deadwood. Adjacent to HV cables. Remove deadwood in top of crown back to strong growth point.	7.8	191
T3	Sycamore	Acer pseudoplatanus	Mature	6		1	400	3	3	3	3	1	Poor	Poor	U	>40 yrs	Suckers from old tree stump. DBH estimated at base. Fell.	4.8	72
T4	Sycamore	Acer pseudoplatanus	Semi-mature	6	1.7SE	1	200	3	3	2	2	2	Fair	Fair	C1	20 to 40 yrs	Adjacent tp HV cables. No action.	2.4	18
T5	Turkey Oak	Quercus cerris	Mature	17	3SE	1	725	4	8	6	7	3	Poor	Fair	B1	20 to 40 yrs	Asymmetric crown. Adjacent to HV cables. Dead stubs at top of stem. Minor deadwood. Remove deadwood in top of crown back to strong growth points.	8.7	238
T6	Turkey Oak	Quercus cerris	Semi-mature	8		1	275	3	4	4	1	3	Poor	Fair	C1	>40 yrs	Highway verge outside fence. Reduced viour. No action.	3.3	34
T7	Sycamore	Acer pseudoplatanus	Semi-mature	6		2	150; 100 (combined 180)	3	2	3	3		Poor	Fair	C1	20 to 40 yrs	Highway verge outside fence. Twin stem. Reduced vigour. No action.	2.2	14.7
T8	Common Ash	Fraxinus excelsior	Early-mature	16	5NE	2	375; 300 (combined 480)	6	6	6	6	5	Poor	Fair	C1	10 to 20 yrs	Twin stem specimen. Highway verge. Ivy. Reduced vigour. Risk of Ash dieback. Minor deadwood. No action.	5.8	104
T9	Common Lime	Tilia europaea	Mature	15	5E	1	475	4	5	5	2	3	Decline	Poor	U	<10 yrs	Very poor specimen. Deadwood & decay at top of failed stem. Suckers. Fell.	5.7	102
T10	Turkey Oak	Quercus cerris	Mature	19	6SW	1	850	6	6	8	8	4	Poor	Fair	B1	>40 yrs	Top of crown is sparse. Reduced vigour. Minor deadwood. No action.	10.2	327
T11	Sycamore	Acer pseudoplatanus	Mature	16	3W	1	725	5	6	4	6	4	Poor	Fair	C1	10 to 20 yrs	Reduced vigour. Dieback in top of crown. Remove deadwood pruning top of crown back to live growth.	8.7	238

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T12	Sycamore	Acer pseudoplatanus	Mature	15	6SE	1	775	5	8	6	5	5	Poor	Poor	C1	10 to 20 yrs	Dieback in top of crown. Decay. Bifurcation at 3m. Remove deadwood pruning top of crown back to live growth.	9.3	272
T13	Common Holly	Ilex aquifolium	Mature	8		Multi-stem	250 avg	7	7	6	6	1	Poor	Fair	C1	10 to 20 yrs	Multi stem. Bark damage caused to stems by grazing animals. Occupies large area. No action.	Crown spread	
T14	Common Beech	Fagus sylvatica	Semi-mature	5		1	150	2	2	2	2	1	Fair	Fair	C1	>40 yrs	Outside new fence. Large growth potential. No action.	1.8	10
T15	Sycamore	Acer pseudoplatanus	Mature	15	4NW	1	500	2	6	4	5	4	Decline	Poor	C1	10 to 20 yrs	Dieback in top of crown. Deadwood & decay. Remove deadwood pruning top of crown back to live growth.	6	113
T16	Sycamore	Acer pseudoplatanus	Mature	14	6W	1	475	5	6	4	6	4	Poor	Poor	C1	10 to 20 yrs	Dieback in top of crown. Deadwood & decay. Remove deadwood pruning top of crown back to live growth.	5.7	102
T17	Scots Pine	Pinus sylvestris	Mature	16	5W	1	525	2	6	5	6	7	Fair	Fair	B1	>40 yrs	Dieback in top. Deadwood. Remove deadwood.	6.3	124
T18	Scots Pine	Pinus sylvestris	Mature	11	1.6NW	1	325	4	4	4	4	2	Fair	Fair	B1	20 to 40 yrs	Early mature. Minor deadwood. No action.	3.9	48
T19	Gum	Eucalyptus gunnii	Early-mature	11		1	325	5	5	4	4	2	Poor	Fair	C1	20 to 40 yrs	Lean to north. Bark damage. No action.	3.9	48
T20	Scots Pine	Pinus sylvestris	Mature	13		1	625	5	5	6	7	10	Poor	Fair	C1	10 to 20 yrs	Major deadwood. Stubs. Remove deadwood.	7.5	177
T21	Sycamore	Acer pseudoplatanus	Mature	13	5SW	1	525	3	4	4	5	2	Decline	Poor	U	<10 yrs	Significant dieback & deadwood. Fell.	6.3	124
T22	Common Beech	Fagus sylvatica	Mature	17	6E	1	1025	7	8	4	5	6	Decline	Fair	C1	20 to 40 yrs	Deadwood. Stubs. Significantly reduced vigour. Remove deadwood. Reduce branches over public highway.	12.3	475
T23	Common Lime	Tilia europaea	Mature	14	4E	1	425	4	6	4	5		Poor	Fair	C1	10 to 20 yrs	Reduced vigour. Bark damage caused by animals. No action.	5.1	81
T24	Common Holly	Ilex aquifolium	Mature	6		Multi-stem	300 avg	6	8	5	6		Poor	Fair	C1	10 to 20 yrs	Multi stem. Bark damage caused to stems by grazing animals. Occupies large area. No action.	Crown spread	
T25	Turkey Oak	Quercus cerris	Mature	19	5SW	1	1025	6	10	12	11	3	Fair	Fair	B1	>40 yrs	Very large specimen. Asymmetric crown. Minor deadwood. Remove deadwood.	12.3	475
T26	Turkey Oak	Quercus cerris	Semi-mature	5		1	300	1	1	2	6	4	Poor	Poor	C1	20 to 40 yrs	Suppressed specimen. Asymmetric crown. No action.	3.6	41
T27	Common Lime	Tilia europaea	Mature	16		2	550; 525 (combined 760)	5	5	6	7	2	Poor	Fair	C1	20 to 40 yrs	Twin stem. Minor deadwood. No action.	9.12	261
T28	Turkey Oak	Quercus cerris	Mature	18	2W	1	500	3	3	6	7	3	Fair	Fair	B1	>40 yrs	No action.	6	113

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T29	Common Lime	Tilia europaea	Mature	12		2	250; 200 (combined 320)	5	5	1	4	3	Poor	Poor	C1	10 to 20 yrs	Poor specimen. Twin stem. Asymmetric crown. Bark damage by grazing animals. No action.	3.84	46.3
T30	Sycamore	Acer pseudoplatanus	Mature	17		1	400	5	4	3	4	5	Poor	Fair	C1	10 to 20 yrs	Poor specimen. Reduced vigour. Ivy. No action.	4.8	72
T31	Sycamore	Acer pseudoplatanus	Mature	16	4E	1	575	6	7	7	6	4	Poor	Poor	C1	10 to 20 yrs	Basal cavity. Reduced Vigour. Ivy. No action.	6.9	150
T32	Turkey Oak	Quercus cerris	Mature	15	5S	1	400	5	7	6	5	4	Poor	Fair	C1	20 to 40 yrs	Highway verge outside fence. Dead at top of stem. Ivy. No action.	4.8	72
T33	Common Lime	Tilia europaea	Dead	15		1	425	4	5	4	5		Dead	Poor	U		Outside fence. Dead. Fell.	5.1	81

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SCALE : 1 : 500 @ A3

DATE : 18/04/2023

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MAP FILENAME : Tree Constraints Plan

Crown Spread

Root Protection Area

Category 'A' Category 'B' Category 'C' Category 'U'

0 40m

T33 U
T29 C
T30 C
T31 C
T32 C
T28 B
T27 C
T25 B
T24 C
T26 C
T23 U
T22 C
T20 C
T21 U
T19 C
T18 B
T16 C
T15 C
T17 B
T14 C
T13 C
T12 C
T11 C
T10 B
T9 U
T8 C
T7 C
T5 B
T6 C
T4 C
T3 U
T2 C
T1 U