

BS5837:2012 Tree survey

For
East Grinstead Sports Club,
Salt Hill Road,
East Grinstead, West Sussex,
RH19 4JU.

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Tree Survey with Preliminary

Tree Constraints.

Assessed in accordance with

BS5837:2012

‘Trees in relation to design, demolition and construction

-Recommendations’

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1.0 Introduction

1.1 Client Instruction

Simon Ffoulkes Tree Consulting was instructed by Les Humphrey Associates, Architects, to undertake a preliminary tree survey at East Grinstead Sports Club accordance with BS5837:2012 – Trees in relation to design, demolition and construction – Recommendations.

- 1.1.1 The reason for a BS5837 survey is to comply with The Town and Country Act 1990 legislation, requiring consultation on trees that will or may be affected by the construction process
- 1.1.2 As part of the survey a Tree Constraints plan was to be formulated to show the trees that would be a constraint to the building process.
- 1.1.3 There is a proposal to extend the parking area to the North west of the Club house and before the Hockey pitches for additional parking.
- 1.1.4 The requirement of the survey was;
 - To record relevant information about the trees on the topographical plan survey.
 - Include any trees or groups not included on the plan.
 - To provide a report that includes a tree survey and an arboricultural impact assessment (AIA) that will indicate any impacts of the proposed development on the adjacent trees and any effects of retaining the trees on the development.
 - To provide information that shows which trees are a constraint to development.
 - To recommend any trees that require pre-construction management or removal.

1.2 Documents provided

- 1.2.1 A topographical plan, Job No 181121 Drg 001 Scale 1:100@A1
- 1.2.2 A Site plan Drg No: 220214-01, scale 1:500

1.3 Scope of the survey

- 1.3.1 The survey relates to trees that are over 75mm diameter at 1.5m height. Groups and hedges may include trees with a smaller diameter.
- 1.3.2 The scope included trees on the Plan drawing that are likely to be affected by the building proposal.
- 1.3.3 The data from the tree survey is provided as an independent survey and does not adhere to specific proposals for the development.

1.4 Survey method

- 1.4.1 The survey method is based around a 'Visual Tree Assessment system' (VTA) that is ratified by the Arboricultural Association and is based on the VTA by *Matteck, C Breloer, H (1994), 'Visual Assessment of Trees'*.
- 1.4.2 No soil samples were taken. The tree inspection was carried out from the ground. The only tools used were a rubber hammer, a steel probe, a dbh tape, a measuring tape and the use of binoculars. Pictures were taken with a digital camera.
- 1.4.3 All the data recorded was in line with those required within BS5837:2012.
- 1.4.4 All the tree species were recorded, and the trees were categorised in conjunction with the Cascade chart within the BS5837:2012 document.

1.5 Limitations

- 1.5.1 Trees are living organisms means their health and wellbeing can change over time and with climatic conditions. The assessment of risk because of unpredictable events recognises that the tree that is surveyed can only be judged upon factors evident at that time of inspection by a suitably qualified arboricultural inspector. All trees that are within the remit of a survey should be checked on a regular basis that is commensurate with the level of risk posed by the trees. A suitable time frame is between one year and 18 months.

2.0 Site visit and observations

2.1 Site visit

- 2.1.1 A site visit was undertaken on by Simon Ffoulkes a trained arboriculturist

2.2 Site observations

- 2.2.1 The land is accessed via the sports club entrance. There is a strip of land between the car park and the Hockey pitches that runs parallel with it. It is essentially a grassy verge with hedges and interspersed trees.
- 2.2.2 The ground is level up to the pitches where it drops away. There are surface roots on some of the larger trees.

3.0 Tree survey

3.1 Tree survey with the constraints

- 3.1.1 The tree survey indicates the grades allocated to the trees and groups on the survey drawing in the **Appendix 2** Tree Survey.

- 3.1.2 The survey identified 10 features that are single trees applicable to the proposed site and construction process. The **Table 1** below indicates which grade has been applied and to how many trees.

Table 1: Grading of features

BS 5837:2012 categories	Trees	Groups
'A' grade	0	0
'B' grade	3	0
'C' grade	4	0
'U' grade	3	0

- 3.1.3 The grading of the trees is based on the cascade chart from BS5837:2012 which will be found in the **Appendix 2**
- 3.1.4 The Root Protection Area (RPA) of each tree will be calculated by the tables within BS5837:2012 which are in the **Table 2** below. They are based on the principle of a circle with its centre on the base of each tree.

Table 2 Tree RPA calculation

Number of stems	Calculation
Single stem tree	$\text{RPA(m}^2\text{)} = \frac{(\text{stem diameter mm @ 1.5m x 12})^2 \times 3.142}{1000}$
Tree with more than one stem arising below 1.5m above ground level	$\text{RPA(m}^2\text{)} = \frac{(\text{stem diameter 1})^2 + (\text{stem diameter 2})^2 + \dots + (\text{stem diameter 5})^2}{1000} \times 3.142$
Trees with more than five stems arising below 1.5m above ground level	$\text{RPA(m}^2\text{)} = \frac{(\text{mean stem diameter})^2 \times \text{number of stems @ 1.5m x 12}}{1000} \times 3.142$

- 3.1.5 The RPA is not always consistent with a circle and many factors will affect the rooting area of a tree. The deviation of the RPA is discussed in (section 4.6.3 of the BS5837:2012) document. Some factors that may affect the RPA are;

- The presence of roads.
- Topography.
- Drainage

- Soil type and structure
- Previous management

3.1.6 The Tree Constraints drawing is attached within **Appendix 3** and shows the extent of RPA along with Tree protection measures. The above ground constraints are indicated by the tree canopy spread and tree height. The below ground constraints are indicated by the Tree Constraints plan. Where a tree canopy extends beyond the RPA of the tree, the constraints plan will be extended to include the canopy.

4.0 Arboricultural Impact Assessment (AIA)

4.1 Legal constraints

4.1.1 The Local Planning Authority Mid Sussex Council has no restrictions on the trees that I am aware of.

4.2 Trees to be pruned or removed

4.2.1 The site plans show that trees T7, T9 and T10 are U grade trees and that have a limited life span owing to their condition arboriculturally.

4.2.2 The trees T4 and T5 would require any of the major dead wood to be removed before any works commences and for general Health and Safety of the site.

4.3 Tree encroachment

- 4.3.1 The re-development plans show the following trees will have their RPA encroached by the proposed development or will be encroached by the building process. The encroached trees are indicated in **Table 3** below.

Table 3

T = Tree G = Tree Group

Tree Ref number	Species	Grade
T1	Birch	C1
T2	Yew	B1
T3	English oak	B1
T4	English oak	C1
T5	English oak	C1
T6	Ash	C1
T7	Ash	U
T8	English oak	B1
T9	Ash	U
T10	English oak	U

5.0 Tree protection measures

5.1 General tree protection

- 5.1.1 Tree protection for the retained trees should be installed before any of the construction process work is undertaken. This must include the movement of plant and machinery on site.
- 5.1.2 Tree protection shall include protection for the trees that require tree surgery management before any construction process begins. This is to ensure that the ground is not compacted, and no other trees are damaged by the tree surgery.
- 5.1.3 Normally the Tree Root Protection Area (RPA) is must be regarded as unavailable for use during the development process and access within the RPA is to be strictly limited. However, in this instance the area for proposed parking will be well within the RPA of all of the trees.
- 5.1.4 In this case a 'No-dig solution' will be proposed and the process will be set out within the Arboricultural Method Statement (AMS).

- 5.1.5 Trees that are to be retained should be protected in a manner consistent with that indicated in the British Standard 5837:2012 to protect the RPA to the end of the project. The protection area is known as the Tree Protection Plan (TPP) and will need to be implemented within the AMS.
- 5.1.6 Materials must not be stored within the RPA during the construction process. No vehicles are permitted within the RPA. No washings should be allowed to soak into the RPA and any fires or cement mixing should be at least five metres from any tree.
- 5.1.7 Where root severance is required, roots up to 25mm in diameter can be severed and larger roots should follow the NJUG 10 guidelines, volume 4, with arboricultural supervision.
- 5.1.8 The ground protection for the working area will be set out within the AMS and will be part of the 'No Dig proposal'.
- 5.1.9 Changes to any of the original soil levels can have a dramatic effect on existing trees whether these include mounding of soil or trenching and soil removal even if only temporary. Changes to any soil levels will be set out within the AMS.
- 5.1.10 Tree protection includes protection to the canopy of the trees and where the canopy of a tree extends beyond the RPA this area should be included as part of the tree protection zone.

6.0 Discussion

6.1 Tree Constraints

- 6.1.1 From the Tree constraints plan **Appendix 3**, all the trees that are to remain will have some form of encroachment within their RPA.
- 6.1.2 The trees T1, T4, T5, and T6 are all C1 graded trees with a limited life span owing to their significance arboriculturally. It would be prudent to remove them before a plan is executed for the car park. They will only reduce in their value and will then become an issue of Health and Safety. This area will be a highly trafficked location and is a high target area. Some of the trees have the potential to cause significant damage to people and property if the areas below them are adopted for car parking.
- 6.1.3 The method of protection for the trees that will be retained will be set out within the Arboricultural Method statement (AMS).

7.0 Conclusions

7.1 Conclusions

- 7.1.1 The proposal is achievable but at least three trees will require removal before the proposal starts, with a decision on four other 'C' grade trees.
- 7.1.2 There will need to be an Arboricultural Method Statement (AMS) for the site that will set out the processes to achieve a joined up and harmonious approach to protecting the trees that

are to be retained. This will be implemented as soon as the final plans for the site are detailed.

- 7.1.3 All tree work should be carried out in accordance with BS 3998:2010 – Recommendations for tree works.
- 7.1.4 All the trees must be assessed for nesting birds and protected species i.e bats. As disturbing protected species is an offence under the **Wildlife and Countryside Act 1981** and the **Countryside and Rights of Way Act 2000**. Advice on Bats and birds nesting can be obtained by contacting;
- Bats: Bat Conservation Trust (0845 1300 2280/ www.bats.org.uk)
 - Nesting Birds: Natural England (0845 600 3078/ www.naturalengland.ork.uk)
- 7.1.5 The Arboricultural Impact Assessment (AIA) indicates the impacts of the project and as there is a requirement for Tree Protection measures, an Arboricultural Method Statement (AMS) will provide the instruction on how the trees are to be protected.

8.0 References

British Standards Institution (2012) *BS5837:2012 – Trees in relation to design, demolition and construction – Recommendations* London: BSI

Mattheck. C and Breloer.H (1994). *The Body Language of Trees*. London: H.M.S.O

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees

Appendix 1 – Cascade chart

Table 1 – Cascade Chart For Tree Quality Assessment				
Trees for removal				
Category and definition	Criteria			Identification on plan
Category U Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	Trees that have serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category trees such as 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, for example Dutch Elm Disease, or very low quality trees suppressing adjacent trees of better quality Note – Habitat reinstatement may be appropriate. For example R category tree used as a bat roost: installation of bat box in nearby tree.			Dark Red
Trees to be considered for retention				
Category and definition	Category – Subcategories			Identification on plan
	1. Mainly arboricultural values	2. Mainly landscape values	3. Mainly cultural values, including conservation	
Category A Those of high quality and value: in such a condition as to be able to make a substantial contribution. A minimum of 40 years is suggested.	Trees that are particularly good examples of these species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal Arboricultural features for example the dominant and/or principal trees within an avenue	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance for example avenues or other aboricultural features assessed as groups	Trees, groups or woodlands or significant conservation, historical, commemorative or other value for example veteran trees or wood-pasture	Light Green
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution. A minimum of 20 years is suggested.	Trees that might be included in the high category, but are downgraded because of impaired condition. Examples include the presence of remediable defects including unsympathetic past management and minor storm damage	Trees present in numbers, usually as groups or woodlands, so they form distinct landscape features which attract a higher collective rating than they might as individuals. But which are not, individually, essential components of formal or semi-formal arboricultural features. For example trees of moderate quality within an avenue that includes better, A category specimens. Or trees which are internal to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	Mid Blue
Category C Those trees of low quality and value: currently in adequate condition to remain until new planting could be established - a minimum of 10 years is suggested - or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	Grey
	Note – Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation.			

Appendix 2 – Tree survey

Tree Reference codes:

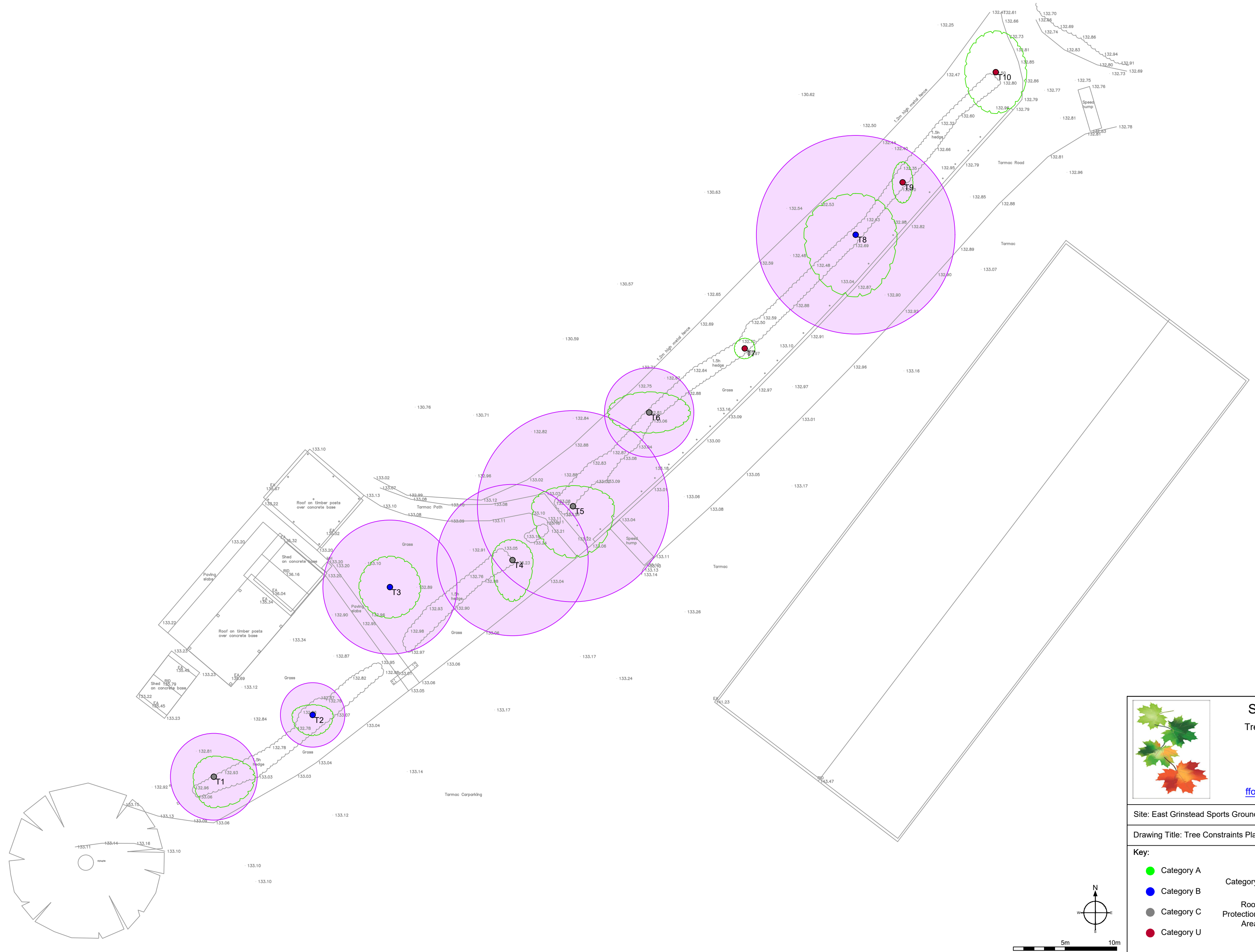
T = Tree G = Group

Tree Reference number	Species	Height m	Stem Diameter mm	Branch spread m	Height of canopy and first major branch cardinal point	Age class	Physiological Conditions	Preliminary management recommendations	Estimated remaining years	Category Rating
T1	Birch	9	350	N2 S3 E4 W2	2S	M	S) Fair P) Good, basal growth	None	10+	C1
T2	Yew	5	260	N1 S2 E2 W2	1N	SM	S) Fair P) Fair.	None	20+	B1
T3	English oak	18	540	N3 S3 E3 W3	2W	M	S) Good, upright character P) Good,	None	20+	B1
T4	English oak	10	610	N3 S4 E2 W2	3S	OM	S) Poor, crown die back. P) Poor, major dead wood in the crown. Slime flux exuding from the trunk	Remove the major dead wood	10+	C1

Tree Reference number	Species	Height m	Stem Diameter mm	Branch spread m	Height of canopy and first major branch cardinal point	Age class	Physiological Conditions	Preliminary management recommendations	Estimated remaining years	Category Rating
T5	English oak	15	770	N2 S5 E4 W4	5N	OM	S) Fair, some crown dieback P) Fair, Some major dead wood	Remove the major dead wood	10+	C1
T6	Ash	10	360	N2 S2 E4 W4	5N	EM	S) Good. P) Fair, signs of Ash Dieback disease	None	10+	C1
T7	Ash	6	280	N1 S1 E1 W1	2S	EM	S) Poor, a codominant tree with one section that was removed and a radically reduced tree. P) Poor, A dead top with a small canopy	None	>10	U
T8	English oak	15	800	N4 S6 E4 W5	4N	M	S) Good, an asymmetric crown. Trunk occlusion to the wound sites is good. P) Good, minor dead wood. Surface roots.	None	20+	B1
T9	Ash	9	290	N2 S2 E1 W1	2N	EM	S) Fair P) Fair, signs of Ash Dieback disease	None	>10	U

Tree Reference number	Species	Height m	Stem Diameter mm	Branch spread m	Height of canopy and first major branch cardinal point	Age class	Physiological Conditions	Preliminary management recommendations	Estimated remaining years	Category Rating
T10	English oak	11	730	N4 S4 E3 W3	4S	OM	S) Poor, major structural crown dieback. Basal decay with a Ganoderma bracket. P) Poor, major dead wood in the crown	Remove the dead wood	>10	U

Appendix 3 – Tree constraints plan



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Site: East Grinstead Sports Ground

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Drawing Title: Tree Constraints Plan

Dec 2024

Key:

- Category A
- Category B
- Category C
- Category U

