

Arboricultural Impact Assessment & Arboricultural Method Statement

Client: Anstey Parish Council

Site: Community Building, Staddon Road, Anstey.

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DISCLAIMER

While all reasonable efforts have been made to identify defects in the subject trees, the statements made in this report do not take into account the effects of extreme weather events, vandalism or accidents, or changes to the site that may affect trees that have taken place since the date of the survey. SP Tree Consultancy Limited does not accept any responsibility in connection with these factors. The comments and observations made within this report will cease to be valid either within two years of the date of the survey (unless specifically stated elsewhere within the report), or when site conditions change or any works to trees take place that have not been specified within this report, whichever is the sooner.

Purpose of Document

This report provides an assessment of the trees at Staddon Road, Anstey in accordance with the guidelines provided by BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations*.

It consists of:

- A **Tree Survey** that records all relevant information about the trees on or adjacent to the site that may be impacted by development of the site. This includes a **Tree Constraints Plan (TCP)** that shows the location of the trees on the site irrespective of any development considerations.
- An **Arboricultural Impact Assessment** to clarify the impact that the proposed development on the trees and includes an **Arboricultural Impact Plan (AIP)**. This shows the location of the trees in relation to the proposed development and the above and below ground constraints posed by retained trees and tree removals.
- An **Arboricultural Method Statement** to identify tree protection measures required. It will also show an illustration of the recommended tree protection measures on a **Tree Protection Plan (TPP)**.

The purpose is to demonstrate how the tree constraints have been considered in the design and layout of the site and the impact of the proposal. It also provides the local authority (Charnwood Borough Council) with the necessary information to assess the tree issues associated with the planning application.

It aims is to provide information in a manner that can easily be understood without specific knowledge of tree related matters.

Executive Summary

SP Tree Consultancy Limited was commissioned to provide an assessment of the potential impact on the existing tree stock, from a development proposal at The Anstey Parish Community Building on Staddon Road, Anstey.

The proposal is for the extension of the current building, construction of additional parking spaces, and new footpath to link existing paths with the centre.

A tree survey was undertaken at the site in accordance with the guidelines provided in BS5837 (2012) Trees in relation to design, demolition and construction – Recommendations. This survey identified a total of 8 trees, 2 hedges, and 3 groups of trees. These have been categorised as follows:

- 1 of good arboricultural quality (Category A)
- 4 of moderate arboricultural quality (Category B)
- 7 of low arboricultural quality (Category C)
- 2 of poor arboricultural quality (Category U)

The proposal will require the removal of 6 of these features, (T002, T003, T011, T012, T013, T14). Four of the features are categorised as of low arboricultural quality and two as poor arboricultural quality, due to limited safe useful life expectancy, poor condition or poor form.

New parking spaces 17-22 will require construction using a no-dig method as these are within the root protection areas of retained trees T001 and T004. The existing ground levels allow this as there are no significant level changes in the area to overcome. The use of no - dig will allow the successful long term retention of the adjacent trees.

The proposed footpath link was originally to run through TG007 with a no dig construction, however levels would not allow it to tie in with the existing path without impacting trees within the group. It has therefore been realigned along the existing fence line of the adjacent play area and down along the edge of the root protection area. Realigning the path will allow the use of traditional construction methods without significant detrimental impact on the trees in TG007. There is a small ingress into the radial root protection area of one beech tree in the group, but an amendment to the protected area allows the required square meters recommended by BS 5837 to be achieved, and allowing long term retention of the beech tree.

The retained tree will be protected during construction by tree protective fencing, construction exclusion zones and the retention of existing hard standing over the root protection area.

There is a proposal for replacement landscaping, details of which will be submitted as a separate report to this one.

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INTRODUCTION

Instruction

- 1.1. Written instruction was received from HSSP on behalf of Anstey Parish Council to undertake a tree survey and to prepare an Arboricultural Impact Assessment to supplement a planning application for a proposed development at Staddon Road (The site).
- 1.2. The proposed development relates to the extension of the current building, construction of additional parking spaces, and new footpath to link existing paths with the centre.

Scope

- 1.3. The survey has been carried out in accordance with the recommendations laid down by *BS5837:2012 Trees in relation to design, demolition and construction*.
- 1.4. The information collected during the survey has been used to assist in the preparation of a report to accompany a planning application. This report includes:
 - A schedule of the relevant trees to include basis data and condition assessment
 - An appraisal of the impact that the proposed development may have on the trees and the resulting impact this may have on the local amenity.

Limitations

- 1.5. The following limitations apply to this report:
 - **Ecology and Archaeology**: Although trees can be a valuable ecological habitat and can grow in archeologically sensitive areas, I have no specialist expertise in these disciplines and this report does not consider those aspects.
 - **Tree Safety**: Whilst every effort has been made to ensure that comments relating to the tree surveyed are accurate, it must be noted that no tree have been climbed, no internal inspections carried out and no excavation of root areas has taken place. As such this report should not be taken to mean or imply that any of the inspected trees should be considered safe. No tree can be guaranteed to be 100% safe as some defects are not detectable by visual non-climbed, non-invasive inspection. Failure of an apparently healthy tree, either in part or totally may occur as a result of physical or physiological stress.

2. TREE SURVEY AND CONSTRAINTS

Tree Survey

- 2.1. A tree survey was undertaken on 16th October 2020 and a copy of the recorded data can be seen in the tree schedule attached to this report (appendix 2).
- 2.2. The tree survey considered all trees that have the potential to be impacted by any development proposals. This included trees that are outside the application boundary, but within influencing distance.
- 2.3. The purpose of the tree survey has been to provide guidance to the developer on the existing tree stock and to inform the site design and layout. The results of the survey allow the opportunity to balance the retention of significant trees against the opportunity to enhance the existing tree stock through proactive management.
- 2.4. The tree survey has been undertaken without influence of the proposed site layout and prior to any works being undertaken on the site.

Tree Constraints

- 2.5. The results of the tree survey are graphically presented on the TCP.
- 2.6. The above ground constraints posed by canopy spread are plotted as a continuous line around the tree, shown in the corresponding BS5837 retention category colour.
- 2.7. The below ground constraints posed by the root protection area (RPA) have been plotted as a magenta line.
- 2.8. A summary of my assessment of the quality of trees, hedges and woodlands that have been identified on the site is summarised in Table 0

Table 1 – An overview of tree quality in the surveyed area

	Category A	Category B	Category C	Category U	Total
Trees	0	2	5	2	9
Hedges	0	0	2	0	2
Shrubs	0	0	0	0	0
Groups	1	2	0	0	3
Total	1	4	7	2	14

- 2.9. Full details of the assessment criteria for the tree survey can be found in Appendix 1.

3. ARBORICULTURAL IMPACT ASSESSMENT

Development Proposal

- 3.1. Demolition of the existing building and construction of new residential accommodation.

Impact Assessment

- 3.2. The impact assessment has been graphically presented by the Arboricultural Impact Plan (AIP) that is attached to this report (Appendix 4).

- 3.3. The purpose of the AIP is to identify:

- Tree that are to be removed.
- Trees that require facilitation pruning.

Arboricultural Impacts

- 3.4. The proposal requires the removal of four low and two poor quality features:

- Six trees T002, T003, T011, T012, T013 and T014.



- 3.5. Trees requiring pruning:

- a minimal amount of pruning, a reduction of approximately 1-1.5m of the lateral branch length on one beech tree in TG007 will be required to prevent damage during construction of the new link footpath.

- 3.6 All pruning works will be undertaken by a suitably qualified arboricultural contractor in accordance with BS3998:2010 Tree Works – Recommendations. This will ensure that the pruning cuts are carried out correctly and will not cause any structural or physiological defects in the future.

4. ARBORICULTURAL METHOD STATEMENT

Overview

- 4.1. The following explanations relate specifically to this site and they should be read in conjunction with the Tree Protection Plan (TPP) attached in this report (Appendix 5).
- 4.2. A copy of this report must be kept on site and be permanently available for the duration of the development. It can be:
 - Included in the tender documents to identify and quantify the tree protection and management requirements;
 - Used to plan the timing of site operations to minimise the impact of trees, and;
 - Referenced on site for practical guidance on how to protect trees.

5. ARBORICULTURAL SUPERVISION

- 5.1. Due to the simple nature of the site, Arboricultural Clerk of Works (ACoW) is unlikely to be required if the guidance in the AMS is followed by the main Contractor.
- 5.2. It is advised that a pre commencement meeting be held with the main contractor to discuss and agree the specifics of:
 - No dig construction for spaces 17-22 adjacent T001 and T004.
 - Construction methods for new link path close to TG007.
 - Assess requirement for construction of rear extension.
 - Requirements and position of tree protection fencing.
- 5.3. If amendments to the proposal or working methods in this AMS are required Arboricultural advice must be sought, and any amended practices agreed with the LPA.
- 5.4. It is the developer's responsibility to ensure that details of this AMS and any agreed amendments are known and understood by all site personnel.

6. BARRIERS AND GROUND PROTECTION

The Construction Exclusion Zone

- 6.1. The primary means of protecting the RPA of trees is through the use of barriers formed by protective fencing. The enclosed area is the Construction Exclusion Zone (CEZ). The CEZ has been marked on the TPP by orange shading.
- 6.2. The CEZs are to be afforded protection at all times and will be protected by fencing. The type of fencing is detailed below.
- 6.3. No works will be undertaken within any CEZ that causes compaction to the soil, changes in levels, or severance of tree roots.

Tree Protection Fencing

- 6.4. A protective fence will be erected around the trees, prior to the commencement of any site works. This includes any materials or machinery brought onto site, development or the stripping of soil.
- 6.5. The fence is to be sited in accordance with the TPP enclosed with this method statement. This is shown as a black dashed line with orange shading indicating the enclosed CEZ. These figures are based on a perfect circle for the RPA around the tree. Where the RPA has been offset the parameters for the fencing have been marked on the TPP. The approximate dimensions of the protective fencing has been illustrated on the TPP.
- 6.6. Measurements for the position of fencing must be taken on site.
- 6.7. The precise form of fencing can vary provided it is fit for purpose and prevents damaging activities within the CEZ. For a proposal of this nature, the Heras 151 system of fencing will provide the necessary protection to the CEZ. Details of this fencing can be seen in Appendix 6.
- 6.8. All Heras fence panels will be joined using a coupling system such as the Heraslock Anti-tamper coupler, using a minimum of two clamps per panel side. Each panel will be fitted securely to a rubberised foot that will in turn be pinned to the ground using metal stakes driven a minimum of 500mm into the ground.
- 6.9. The fence will have signs attached to it stating that it defines a CEZ and that no works are permitted within the fence. No notice boards, cables or other services will be attached to any tree. An example of a fencing sign is provided in Appendix 7.
- 6.10. After the protective fencing has been erected, the LPA tree officer may be invited to inspect the tree protection measures prior to any works commencing if requested.
- 6.11. The protective fencing may only be removed following completion of all major construction works.
- 6.12. Only the removal of the existing surfacing, landscaping and construction of the new boundary wall are required when the TPF is not in place. Care must be taken to keep machinery and materials outside the RPA during these works.

7. TEMPORARY GROUND PROTECTION

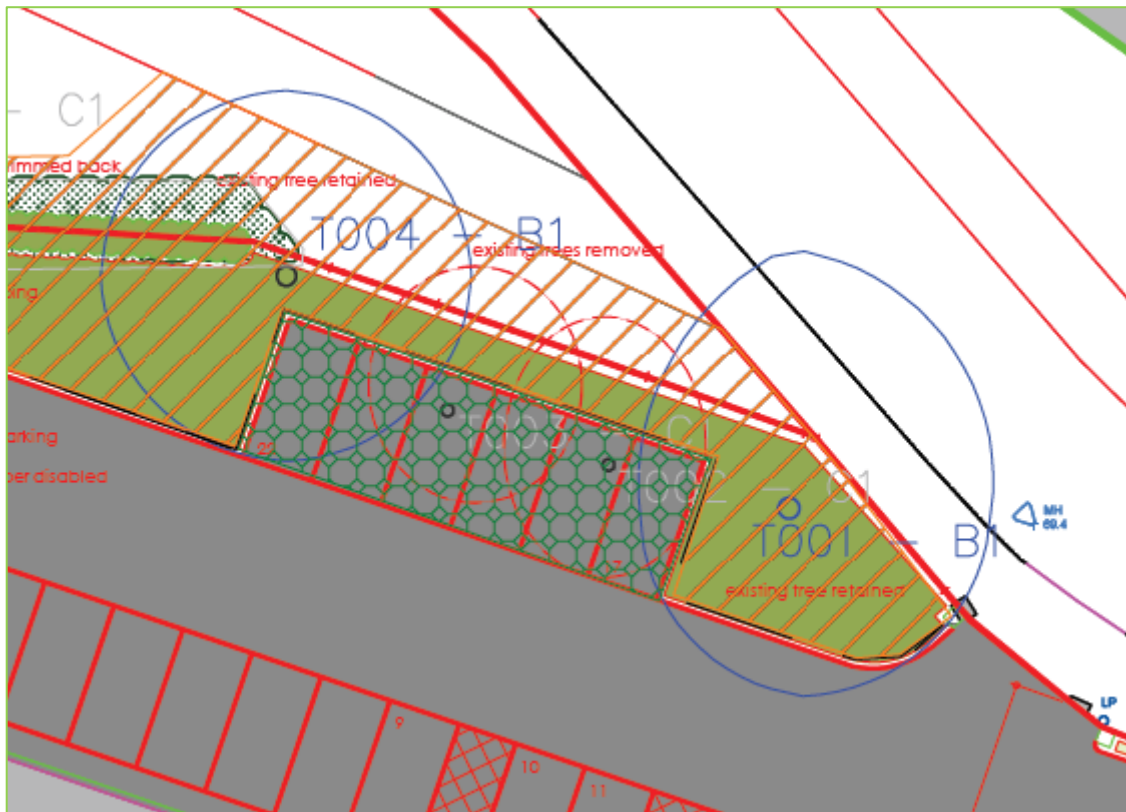
- 7.1. Where it is not practical to protect the RPA by use of fencing barriers, BS5837 allows for the fencing to be set back and the soil shielded by ground protection. A range of methods can be used including retaining existing hard surfaces or structures that already protect the soil, installing new materials, or a combination of both. Whatever the choice of method, the end result must be that the underlying soil (rooting environment) remains undisturbed and retains the capacity to support existing and new roots.
- 7.2. Existing hard surfacing will be retained in the Construction Exclusion Zone (as shown in the TPP Appendix 5) during major construction works.

8. SPECIFIC TREE PROTECTION MEASURES

- 8.1. No specific tree protection measures are required for any tree on this site other than those detailed in this AMS and defined on the TPP.
- 8.2. It is not anticipated that any excavations will be required for the installation of services are required in the RPA. If excavations are required they must be completed as detailed below:
- 8.3. Any machinery used to conduct the excavations must be sited outside of the RPA and reach into the area. The machine is to work slowly under the guidance of the ACoW. A mini 360 excavator would be suitable for conducting such excavations.
- 8.4. Appropriate tools for manually removing debris may include a pneumatic breaker, crow bar, sledgehammer, pick, mattock, shovel, spade, trowel, fork and wheelbarrow. Secateurs and a handsaw must all be available to deal with any roots that are exposed.
- 8.5. Debris may be removed from the RPA manually, but it may be lifted out by machines provided this does not disturb the RPA.
- 8.6. Great care must be taken throughout these operations to ensure that there is limited damage to the root system.
- 8.7. Severance of roots over 25mm should be avoided unless advised by an Arboriculturalist. Where roots will remain exposed for any period of time wrapping of roots using hessian should be implemented.

9. NO-DIG HARD SURFACES WITHIN THE RPA

- 9.1. Where no-dig hard surfaces are required within the RPA, there must be no excavation into the soil, either through the lowering of levels and/or scraping, other than the removal of turf or other surface vegetation. All such works shall be carried out using hand tools only.
- 9.2. In order to protect the RPA of trees T001 and T004 a three-dimensional cellular confinement system will be installed. This is a load bearing system which protects roots from the effects of compaction from regular vehicular movement. The recommended product for this solution is CellWeb but whatever system is used, the end result must be that the underlying soil (rooting environment) remains undisturbed and retains the capacity to support existing and new roots.
- 9.3. The dimensions for the area protected by the Cellweb have been marked on the TPP, which can be identified by the green honey comb hatch on the plan.



- 9.4. The CellWeb will be pinned in place and backfilled with Type 1 MOT and finished with a wearing surface of blinded crushed stone and gravel or pea shingle. The edgings of the drive are to be installed on top of the CellWeb and will comprise of timber boards staked in place and backfilled with the wearing layer as previously described.
- 9.5. Once the system has been installed and backfilled correctly machinery can work from on top of the system.
- 9.6. Details of Cellweb are included in Appendix 9, and a methodology for installation can be provided by the manufacturer and it will be the responsibility of the contractor to ensure that whatever system is used, it is installed in accordance with the latest guidelines provided by the manufacturer.

10. DEMOLITION

- 10.1. No demolition works will take place within the RPA of any retained trees on this site.
- 10.2. The TPF must be in place before the demolition of the existing building begins.
- 10.3. Any machinery used to conduct the surface removal must be sited outside of the RPA and reach into the area. The machine is to work slowly under the guidance of a trained banksman. A mini 360 excavator would be suitable for conducting such works.
- 10.4. Appropriate tools for manually removing debris may include a pneumatic breaker, crow bar, sledgehammer, pick, mattock, shovel, spade, trowel, fork and wheelbarrow. Secateurs and a handsaw must all be available to deal with any roots that are exposed.
- 10.5. Debris may be removed from the RPA manually, but it also may be lifted out by machines provided this does not disturb the RPA.

11. DEVELOPMENT

11.1. Once all tree works and protective fencing have been completed, the developer can commence the on-site preparation works and construction can begin.

Site Storage, Cement Mixing and Washing Points

11.2. No storage of materials will take place within a CEZ.

11.3. No mixing or storage of materials will take place up a slope where they may leak into a CEZ. Where contours of the site create a risk of polluted water running into RPAs, precautionary measures of using heavy duty plastic sheeting and sandbags with the ability to contain accidental spillage will be put in place to prevent contamination.

Contractors Parking

11.4. Contractors parking will not be within or in close proximity to a CEZ.

Utility Services

11.5. There is no requirement for any service to be installed within a CEZ or RPA of any retained tree on this site.

Fires

11.6. No fires will be lit on this site.

Site Gradient

11.7. There will be no changes to any levels on this site within or in close proximity to the RPA of any retained tree on this site.

Use of Herbicides

11.8. There is no requirement of any herbicide to be used on this site.

Contingency planning

11.9. No mixing or storage of materials will take place up a slope where they may leak into a CEZ. Where contours of the site create a risk of polluted water running into RPAs, precautionary measures of using heavy duty plastic sheeting and sandbags with the ability to contain accidental spillage will be put in place to prevent contamination.

11.10. Water will be kept readily available on site and will be used to flush split materials through the soil and avoid contamination of tree roots.

11.11. At the time of any spillage the main contractor will contact an Arboriculturalist for advice.

12. RESPONSIBILITIES

- 12.1. It is the responsibility of the main contractor to ensure that the planning conditions attached to planning consent area adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.
- 12.2. The main contractor will be responsible for contacting the LPA at any time issues are raised related to the trees on site.
- 12.3. If at any time pruning works are required permission must be sought from the LPA first and then carried out in accordance with BS3998:2010 Tree Works – Recommendations and industry best practice.
- 12.4. The main contractor will ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective fences will remain in position until completion of ALL construction works on the site.
- 12.5. The fencing and signs must be maintained in position at all times and checked on a regular basis by an on-site person designed that responsibility.
- 12.6. The main contractor will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

13. APPENDICES

Appendix 1: Tree Survey Criteria (BS5837:2012)

- 13.1. The assessment of the trees has been carried out in accordance with the guidance provided in Annexe C of BS5837. In summary this requires that any tree on the site with a stem diameter of over 75mm at 1.5m above ground level is recorded.
- 13.2. All observations were made from ground level, without detailed investigation with regard to the general condition of the tree.
- 13.3. Trees that are located outside of the site have been considered as part of this survey, and have been annotated on the accompanying plan as such.
- 13.4. Stem diameter measurements were taken using a girthing tape and in accordance with Annexe D of BS5837. Where access to the base of the tree was not possible for any reason, the diameter has been estimated.
- 13.5. Height, crown spread and canopy clearance measurements are recorded in accordance with the measurement convention detailed in paragraph 4.4.2.6 of BS5837.
- 13.6. The trees are categorised in an order defined in **Table 1** of BS5837, a copy of which can be seen below in **Figure 1**, but which can be summarised as:
 - **A Category** Trees of high quality and value in such a condition as to be able to make a substantial contribution for a minimum of 40 years.
 - **B Category** Trees of moderate quality and value in such a condition as to make a significant contribution for a minimum 20 years.
 - **C Category** Trees of low quality and value currently in adequate condition able to remain until new planting can be established. These trees are expected to remain for a minimum of 10 years. It also includes young trees with a stem diameter less than 150mm measured at 1.5 metres above ground level.
 - **U Category** Trees 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 or forestry management.
- 13.7. Additionally, BS5837:2012 provides subcategories 1-3 within the category system outlined above which indicate the area(s) in which a tree or group retention value lies.
 - Mainly arboricultural.
 - Mainly landscape.
 - Mainly cultural, including conservation.

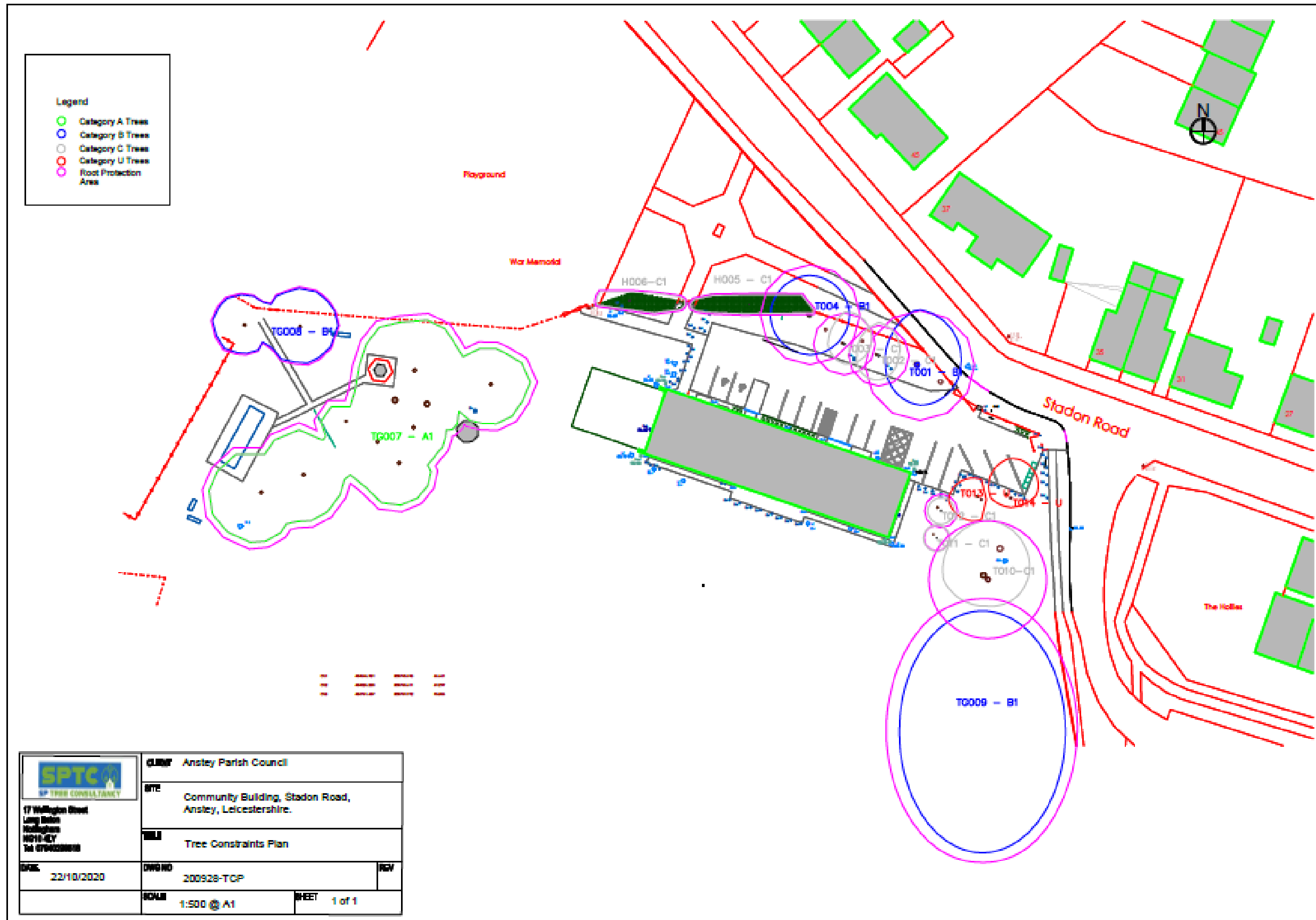
Table 1 Cascade chart for tree quality assessment

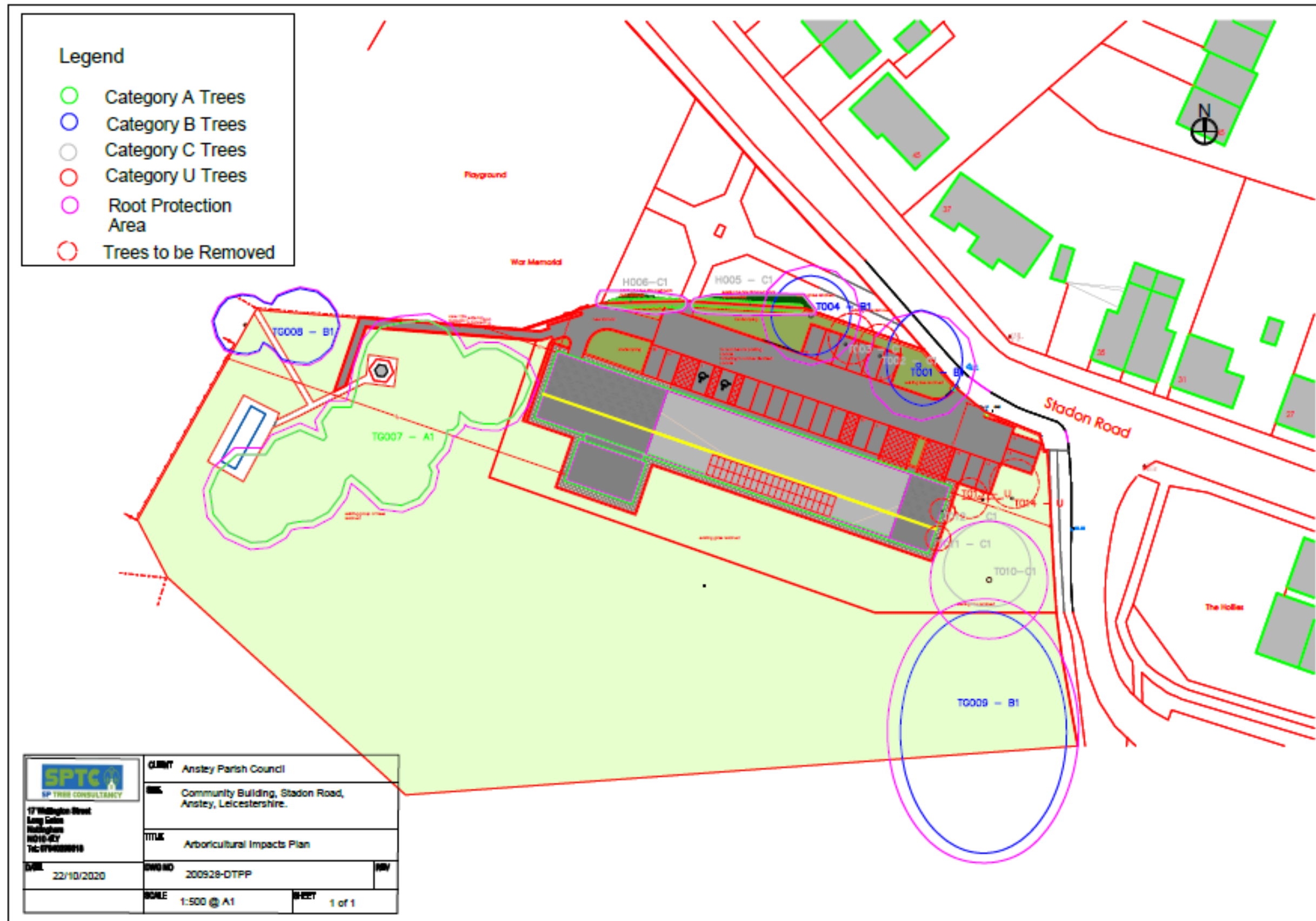
Category and definition	Criteria (including subcategories where appropriate)	Identification on plan
Trees unsuitable for retention (see Note)		
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	<ul style="list-style-type: none"> Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, 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 <p>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</p>	See Table 2
Trees to be considered for retention		
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	<p>1 Mainly arboricultural qualities</p> <p>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)</p> <p>2 Mainly landscape qualities</p> <p>Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features</p> <p>3 Mainly cultural values, including conservation</p> <p>Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)</p>	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	<p>Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable 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</p> <p>Trees present in numbers, usually growing as groups or woodlands, such that they attract a 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</p>	See Table 2
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	<p>Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories</p> <p>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</p>	See Table 2

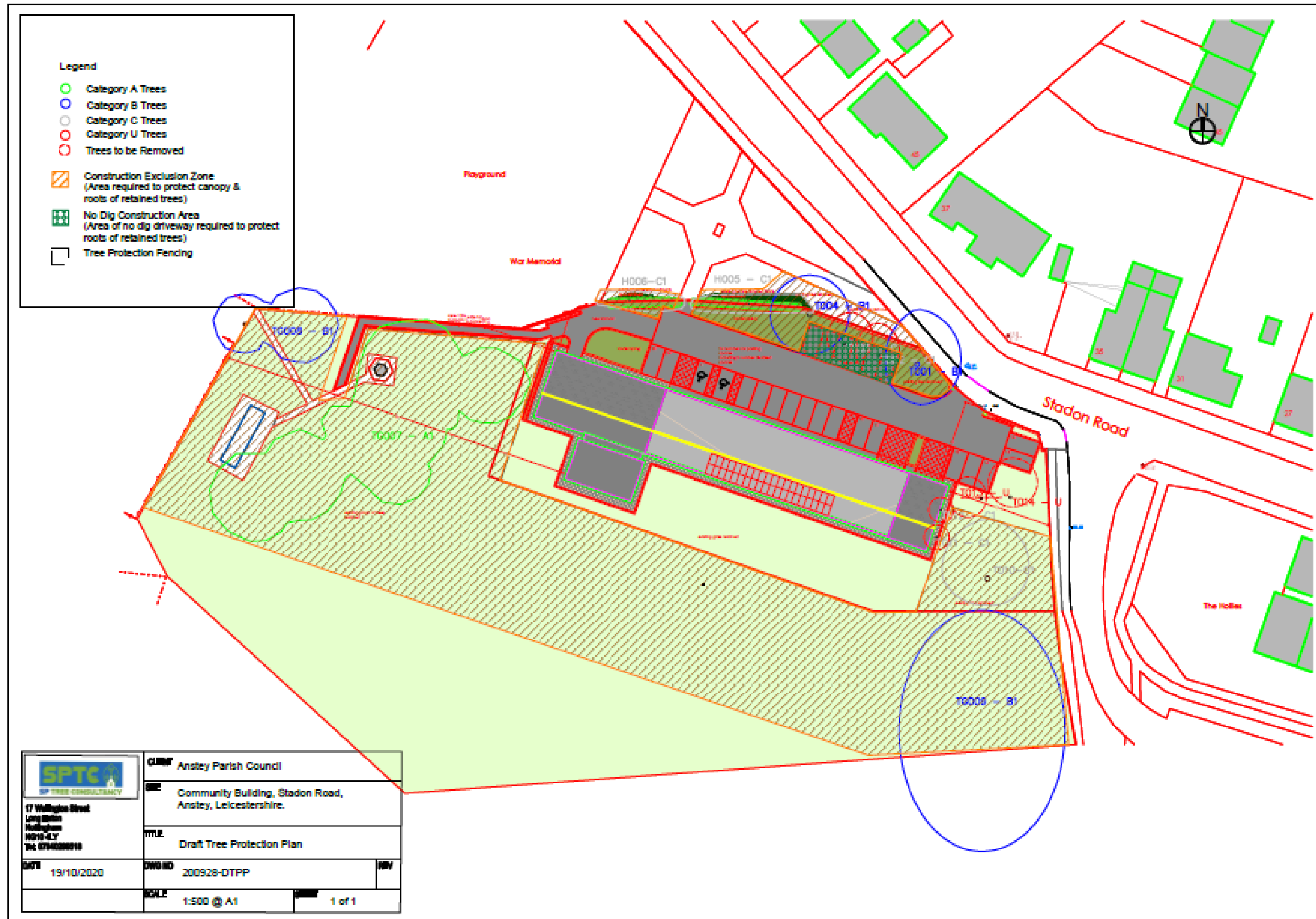
Figure 1 – BS5837 Cascade Chart

Appendix 2: Tree Survey

Client:		Anstey Parish Council																		2020/10/19-01/18			
Site:		Community Building, Staddon Road, Anstey, Leicestershire.										Surveyor:		Shaun Phillips						Date of survey:		16/10/2020	
Key to Notations																							
		Age Class				Definition				Category Grading													
Stem Dia:		Stem diameter (mm) at 1.5m above ground level				Y	Young				Trees that have not yet reached 1/3 of their expected mature height				Category				ERC		Sub category		
C.C.		Height of crown clearance above ground level				EM	Early Mature				The stage in the life cycle of a tree between youth and maturity				A	High Quality & Value				40+		1	Mainly arboreal/cultural value
L.B.		Lowest branch height in meters				M	Mature				Close to full height and crown size				B	Moderate Quality & Value				20+		2	Mainly landscape value
D.L.B.		Direction of Lowest Branch				OM	Over Mature				Close to full height and crown size while main-stem diameter increases more slowly				C	Low Quality & Value				10+		3	Mainly cultural value
E.R.C.		Estimated Remaining Contribution (in years)				V	Veteran				A tree that has survived the rigours of life and shows signs of ancientness				U	Unsuitable for retention				<10			
Physiological condition		Good		No significant health problems						Fair		Symptoms of health that can be remediated						Poor		Significant ill health			
Structural condition		Good		No significant defects						Fair		Significant defects that can be remediated						Poor		Significant defects with no remedy			
Tree No.	Structure	Species	Botanical Name	H (m)	Stem Dia.	No of Stems	Branch Spread (m)				CC (m)	LB (m)	DLB (m)	Age	PC	SC	Comments	Recommendations	ERC	Cat.	RPA (m2)	RPA Radial distance (m)	
							N	E	S	W													
T001	Tree	Maple	Acer sp.	12	690	1	9	4	6	4	5	5	N/A	M	Fair	Fair	None	None	40+	B1	222	8	
T002	Tree	Prunus	Prunus sp.	7	380	1	5	3	4	3	2	2	N/A	M	Fair	Fair	None	None	10+	C1	64	5	
T003	Tree	Prunus	Prunus sp.	6	390	1	5	4	3	2	2	2	N/A	M	Fair	Fair	None	None	10+	C1	72	5	
T004	Tree	Ash	Fraxinus sp.	10	629	2	6	6	6	6	2	3	N/A	M	Fair	Fair	None	None	20+	B1	177	8	
T005	Hedge	Holly	Ilex sp.	2	100	1	1	1	1	1	0	0	N/A	M	Fair	Fair	None	None	20+	C1	5	1	
T006	Hedge	Holly	Ilex sp.	2	100	1	1	1	1	1	0	0	N/A	M	Fair	Fair	None	None	20+	C1	5	1	
T007	Group	Birch Lime x3 Common Beech x5	Betula sp. Tilia sp. x3 Fagus sylvatica x5	14	600	1	5	5	5	5	2	2	N/A	M	Fair	Fair	None	None	40+	A1	163	7	
T008	Group	Beech Lime	Fagus sp. Tilia sp.	8	465	1	5	5	5	5	2	2	N/A	EM	Good	Fair	None	None	40+	B1	102	6	
T009	Group	Whitebeam Birch Creek Willow x2	Sorbus aria Betula sp. Salix fragilis x2	22	1050	1	8	7	7	8	2	2	N/A	EM	Fair	Fair	Not plotted on topo position is indicative.	None	20+	B1	499	13	
T010	Tree	Aspen	Populus tremula	16	750	1	9	6	4	7	4	4	N/A	EM	Fair	Fair	None	None	10+	C1	254	9	
T011	Tree	Hornbeam	Carpinus betulus	5	160	1	2	2	2	2	2	2	N/A	Y	Fair	Fair	None	None	40+	C1	10	2	
T012	Hedge	Hornbeam	Carpinus betulus	5	210	1	2	2	2	2	2	2	N/A	Y	Fair	Fair	None	None	40+	C1	18	2	
T013	Tree	Prunus	Prunus sp.	5	358	2	3	0	3	5	2	3	N/A	M	Fair	Poor	Significant symmetric crown.	Poor quality with Low retention value.	<10	U	55	4	
T014	Group	Whitebeam	Sorbus aria	7	380	4	6	4	1	3	2	2	N/A	M	Fair	Poor	Significant lean and asymmetric crown.	Poor quality with Low retention value.	<10	U	64	5	







Appendix 6: Tree Protection Fencing

heras® 151 and 151steadfast system

round top panel with anti-climb mesh
high visibility orange blocks
steadfast strut
anti-tamper coupler
fully tested and certificated
health and safety compliant (HSG 151)

151 system

The key components of the Heras 151 system are as listed.

Round Top Panel with Anti-Climb Mesh

- The strongest panel on the market, with 3 sides formed from a continuous length of tube, eliminating the top corner weld, often the weakest point in traditional panel design.

High Visibility Orange Block

- Permanently coloured with a durable UV stabilised "haze" casing and filled with solid high density concrete.
- Effectively highlights any potential trip hazard.
- Beware of cheap imitations – painted coatings will chip and peel.

Heraslock® Anti-Tamper Coupler

- Providing additional security, these couplers can only be removed with the use of the specialist tool.

151 steadfast system

The Heras 151 steadfast system incorporates all the benefits of the 151 system, with the addition of the patented...

Heras® Steadfast Strut

- The unique design of this clever strut, dramatically increases the stability of the fence.
- The strut fits neatly within the high visibility block, allowing a neat and compact solution, and acts as an integrated anti-lift device.
- 3 additional fixing holes incorporated into the design, allow for soil pins and thunderbolts, dependent on ground conditions.

Optional Extras

- Heras® Steadfast Safety Strips with reflective coating can be fitted in minutes to highlight site dangers.
- Front support brackets allow vastly improved performance on softer ground conditions and fit quickly and easily into the high visibility blocks.

Having invented the original concept of temporary fencing back in the 80's, Heras is proud of its reputation as a true innovator.

Our latest solution for securing site perimeters and protecting the public has been phenomenally successful since its launch, and offers the ultimate market leading temporary fencing system.

Our sales, most stable and most secure system ever offers you total peace of mind, and unrivalled performance.

You can be sure that by installing the Heras® 151 Steadfast System (patent pending), you are conforming fully to the latest HSE Guidelines on "Protecting the Public" from the dangers of construction sites.

Heras has campaigned widely over recent years against falling product standards, and has consulted closely with senior figures across the construction industry to ensure our products meet and exceed your expectations. This latest innovative system means you should never again need to compromise on:

- Value for money
- Quality
- Performance
- Design
- Ease of installation.

All backed up with unbeatable service from our nationwide branch network – deal direct with Heras – your safety first fencing supplier.

Fully Tested and Certificated

- Extensive independent testing by Sheffield Hallam University has proved the performance of the system, resisting wind speeds well in excess of gale force.
- The HSE has confirmed that the system meets all of the guidelines in the HSG 151 Publication "Protecting the Public - four next move".
- In turn, therefore, we can offer customers a certificate of compliance when they purchase the system from Heras.
- It is your responsibility to ensure the system is correctly installed and fixed. For help and advice, contact your nearest branch.






1. Front stabiliser
2. High visibility footblocks
3. Round top panel
4. Steadfast strut
5. Anti-tamper coupler
6. Optional steadfast safety strips
7. Anti-climb round top panel with steadfast struts to increase stability






2. Heras | The Original Name for Temporary Fencing
www.herasfencing.co.uk

Heras | The Original Name for Temporary Fencing
Telephone: **0844 442 0011**

Appendix 7: Example of Protective Fencing Signage



Appendix 8: Permanent Ground Protection

CellWeb™ Tree Root Protection System



The CellWeb™ TRP cellular confinement system protects tree roots from the damaging effects of compaction and desiccation, while creating a stable, load-bearing surface for vehicular traffic.

CellWeb™ offers an alternative to the traditional methods of constructing roadways and building foundations that involve excavation, which can result in tree root severance and soil compaction from the passage of vehicles. Such damage can severely influence tree health, and in extreme cases leads to death. CellWeb™ can be sensitively installed close to and under the canopies of trees without negative effects.

Trees are valuable landscape features and a vital environmental resource. Increasingly, contractors are being required to ensure the health and survival of trees during and beyond the construction period. Although this is enshrined in BS 5837: Trees in Relation to Construction: Recommendations (2005) and Tree Preservation Order legislation, it presents several issues when implementing construction projects near to trees:

- Root severance caused by excavation, leaving trees open to decay, less stable and with a diminished capacity to utilise soil water and nutrients.
- Destruction of soil structure and compaction due to the passage of heavy vehicles, restricting the flow of water and air to tree roots.
- Need for construction access, new roadways and hard surfaces that require engineering-standard load-bearing foundations that meet building regulations.
- Need for high-performance, cost-effective driveways and roadways in the vicinity of tree roots.



Potential loss of existing tree due to poor construction techniques.

The CellWeb™ system overcomes these issues and helps contractors to comply with tree health guidelines by creating a load-bearing base that is water-permeable, stable and durable.

With no need for excavation, the system is quick and easy to install, reducing construction time and saving costs and making it suitable for temporary and permanent solutions.



Glynebourne Wood.

Pedestrian path to recreational wood and built using a CellWeb™ foundation which was covered with Duollock and then filled with woodchip to create a porous surface.

Product features



CellWeb™ comprises an expandable cellular mattress that is then filled with a clean stone sub-base and above a Treetex T300 Geotextile.

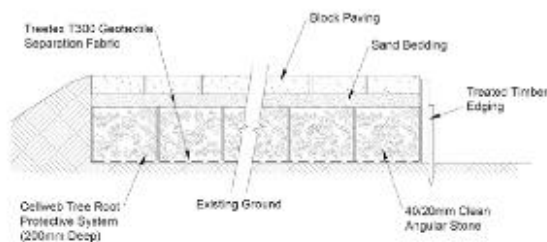
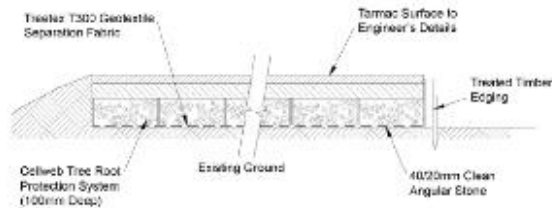
The honeycomb-like structure is made of robust high-density polyethylene (HDPE) that is simply stretched out and filled with clean angular material. Just like traditional roadways, the strength of the structure comes from the binding together of the infill, but with CellWeb™ this is achieved without compaction and without reduction in permeability.

Perforated cell walls allow the angular infill to bind with the contents of the adjacent cell, but with sufficient space for the movement of water and air to nearby tree roots. As the infill contains no fines and the geotextile layers prevent clogging from particles washing into the system, the structure remains permeable to water over time and protects the roots for the lifetime of the tree.

As well as being quick and easy to install, CellWeb™ also dramatically cuts down the depth of sub-base required, in most cases by as much as 50%, further reducing costs. CellWeb™ significantly reduces surface rutting, increasing the long-term performance of the finished surface and ensuring that tree roots remain protected from vertical loads.

CellWeb can be used as a permanent solution or alternatively the system can be used in a temporary situation. In a temporary application the system can be used for the required period of time, then removed for use on another site or recycled, thereby adding to CellWeb's green credentials.

- No excavation – Soil structure remains undisturbed; risk of root damage minimised.
- Porous infill – Allows tree roots to conduct moisture and gas exchange.
- No compaction – No need to compact the infill to achieve a load-bearing structure.
- Lateral stability – Structure remains rigid to vertical loads.



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Appendix 9: Authors Qualifications and Experience.

13.8. This report has been prepared by Shaun Phillips.

13.9. I have 30 years' arboricultural experience working in both the private and public sector. I have undertaken work on a variety of projects on behalf of local authorities, private and commercial clients.

13.10. I have a Post Graduate Certificate in Management Studies, a HND in Arboriculture and Urban Woodland Management and a ND in Countryside and Environmental Studies. I am also qualified as a tree risk assessor for the International Society of Arboriculture's Tree Risk Assessment Qualification (TRAQ).

13.11. I am a Professional member of the Arboricultural Association, and the Institute of Chartered Foresters. In accordance with the professional standards of both associations, I undertake regular Continuing Professional Development (CPD) in all areas of arboriculture as well as in wider business administration and other related disciplines.

Signed

A handwritten signature in blue ink that reads 'S Phillips'.

Date 23/10/2020

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