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Arboricultural Report

BS 5837:2012 Tree Survey

& Arboricultural Impact Assessment

Land at:

Shanklin Manor, off Manor Rd, Shanklin

Prepared by: Andrew Southcott
Date: 10th January 2024
Ref: AS/PC/0124

Contents

Validation Statement for Local Planning Authority (LPA) Registration

This report is intended to be submitted to the Isle of Wight Council in support of a planning application. The report contains tree information relevant to the proposed development. For LPA validation purposes, this report contains the following information:

- A full tree survey compliant to the requirements of BS5837:2012 "Trees in relation to design, demolition and construction - Recommendations", undertaken by a competent and qualified arboriculturist.
- A suitably scaled plan with north point showing the site boundaries and the tree survey information.
- An assessment of the impacts of the proposed development on the existing trees, including recommendations of which trees should be removed/retained.

1. INTRODUCTION

1.1 **Instruction:** I am instructed to survey trees that could affect or be affected by the proposal on land adjacent to Shanklin Manor, off Manor Road, Shanklin. This report, in compliance with BS5837:2012 "Trees in relation to design, demolition and construction - Recommendations" (herein referred to as BS5837) is required to accompany the submission of a planning application for alterations within the site. My instruction is to prepare the following information:

- A schedule of the relevant trees and all tree data as required by BS5837.
- A Tree Survey & Constraints Plan (TSCP)
- An Arboricultural Impact Assessment (AIA)

1.2 **Information provided:** Drawings AS/PC/0124 TSCP is derived from the following drawing:

- *OS Mastermap Topography Layer 907645_1155353* in DWG format.

No topographical site plan was available, so the trees have been positioned by triangulating from fixed points on the supplied OS plan.

1.3 **Purpose and scope of this advice:** The tree survey and report have been produced both to assist the design process and to support the planning application process. It is intended to demonstrate the site's arboricultural constraints and to make recommendations regarding the potential impact of the proposal on the trees and vice versa. It focuses on all trees that may affect or be affected by the development proposal, whether within the site boundary or off-site.

1.4 **Limitations:**

1.4.1 The survey was a preliminary assessment undertaken from ground level, and limited by boundaries, vegetation and other features on site. Observations have been made solely for the purposes of assessment relevant to the planning process, and the report is not a condition survey or safety inspection. Where obvious risks have been observed they have been highlighted in the "preliminary management recommendations" of the tree survey schedule, however potential hazards and their severity are likely to change over time. Binoculars, sounding mallet and probe have been used to aid tree assessment; no invasive or non-invasive internal decay detection equipment have been used in assessing the trees.

1.4.2 The recommendations and conclusions in this report relate only to the conditions found on site at the time of the inspection, as trees are dynamic organisms whose health and condition can change rapidly. The findings are valid for a period of 12 months from the date of report providing the site remains as it stands at present. Any significant changes to the site which may affect the trees (such as building works, changes in levels, hydrology etc.) would require a re-assessment of the trees.

1.4.3 This report is intended for use solely by the client and their agent if applicable, and not for the benefit of any third party. Anyone not directly involved with this site shall not have any rights in connection with it. No part may be reproduced in any form without the written consent of Woodside Tree Consultancy.

1.5 **Ecological Constraints:** The Wildlife and Countryside Act 1981 and amendments made within and subsequent to the Countryside and Rights of Way Act 2000 provides statutory protection to bats, birds and other species that inhabit or use trees. The protection afforded to such species could impose significant constraints on the use of a particular site, as well as restrict the timing of any works that may be necessary. Any such restrictions are outside the scope of this report.

1.6 **Status of the trees:** Having searched the Isle of Wight Council Core Strategy Proposal Map on 19th December 2023, it shows that there are no Tree Preservation Orders (TPO) affecting trees considered within this report. However, the site is located within the Shanklin Conservation Area. This provides a level of protection to any trees whose stem diameters (at 1.5m above ground level) exceed 75mm.

2. SITE VISIT AND TREE SURVEY

2.1 **Site visit:** I visited the site on 6th December 2023, with the weather at the time of survey being fine which in no way hindered my ability to view the trees satisfactorily. All observations were made from accessible points at ground level, with all measurements except stem diameter being estimated unless otherwise indicated in the Tree Survey Schedule and Notes.

2.2 **Site Description:** The site is a partially overgrown area of land formerly part of the adjacent manor house, where it formed part of the grounds including tennis courts and paths through the tree cover. This area has been neglected in recent years but is now being brought back into active management for the benefit of local wildlife. Tree cover includes a number of large mature Holm oaks as well as Scots pine and sycamore, scattered throughout the site. The relevant area covered in this survey measures c.0.2ha as shown in Figure 1.

Figure 1. Aerial view showing the area covered within this survey (Google 2024)

2.3 **Data Collection:** Each relevant tree or group was inspected and allocated an identification number as indicated in the Tree Survey Schedule (Appendix 1) and tree survey plan (Appendix 4). They were allocated one of four categories (A, B, C or U) in line with BS5837 recommendations (see Appendix 3) as well as having the following important information collected:

- Species, Height (m) and stem diameter (mm)
- Average crown spread to the 4 cardinal points (m)

- Average canopy clearance; height and orientation of first significant branch
- Life stage, condition and preliminary management recommendations
- Remaining safe useful life expectancy; Root Protection Area calculations

2.4 **Root Protection Areas:**

2.4.1 In accordance with section 4.6 of BS5837, the stem diameter measurements have been used to calculate the Root Protection Area (RPA), both in terms of radial distance from the tree and as an area in m^2. The RPA is the area that should ideally remain free from disturbance by adjacent construction works, as it is deemed to be the minimum area around a tree required to maintain sufficient rooting volume to sustain the tree's vitality. Therefore the adequate protection of the roots and soil structure in this area must be treated as a priority.

2.4.2 The calculated extent of the RPA is used to identify any design constraints within the site, and is visually represented on the TSCP. The TSCP shows the above-ground constraints (*i.e*. branch spread), and the below-ground constraints (the anticipated extent of significant root spread depicted as the calculated RPAs).

2.5 **Tree survey:** Five individual trees and two groups were surveyed and assessed for their suitability for retention. Refer to appendices 1 & 4 for details of their identity, location and assessment. Please also refer to the Tree Survey Schedule Notes (Appendix 2) and BS5837 Cascade Chart (Appendix 3) for full details of the assessment criteria.

3. ARBORICULTURAL IMPACT ASSESSMENT

3.1 **General observations:** The main relevant tree cover was situated along the E side of the existing unmade access track entering the site from the S. This overlapped the access track both in terms of root spread as well as crown spread. There was also a single pine tree growing between the stone wall of the W boundary and the adjacent surfacing of a former tennis court, adjacent to where a storage container is proposed to be located. These and all other smaller trees nearby were surveyed to provide a clear picture of potential constraints to the proposed alterations.

3.2 **Below ground constraints (Root Protection Areas):**

3.2.1 This section deals with tree roots, which can easily be overlooked during construction operations due to being hidden and often their importance, and that of the soil around them, is not fully understood. It is essential that the roots remain undamaged during the site preparation and construction phases, as they provide the structural stability as well as transporting water and nutrients throughout the tree. Crucially they cannot perform their functions effectively if the soil structure around them is also damaged, which is why the RPA must be adequately protected.

3.2.2 The TSCP visually represents the required RPA for each tree as a magenta circle centred on its stem. In reality the spread of tree roots may not be distributed in a perfect circle if the environment below ground level is highly variable. The presence of structural foundations, impermeable surfacing, differing soil conditions or levels mean that tree roots will extend in to areas that offer a preferential environment; where water is most available and the soil is least affected.

3.2.3 In consideration of the above, the RPAs of T1-5 and G1 have been adjusted (offset by 20% into the site). For T1-4 and G1 this is due to their close proximity to the lane to the E, which includes a drop in levels and partially compacted ground along the lane. For T5 it is due to the close proximity of the boundary wall and its associated footings that will have restricted natural root spread to the W. On the whole, within the site the soil environment is less affected by such alterations or barriers, however it is important to note that ground immediately E of T5 is beneath longstanding tarmac surfacing of the former tennis court, which will also restrict normal moisture levels beneath the surfacing.

3.2.4 As shown on the TSCP, the RPAs of surveyed trees all overlap the route of the existing unsurfaced access track between the entrance and former tennis court area. The proposed scheme is limited to low-level vehicular access by the owner to reach the existing concrete hardstanding area, which will be retained and used for his vehicle parking. It is proposed that the route as shown (hatched red on TSCP) will be upgraded to provide arboriculturally sensitive surfacing in order to allow vehicular access for on-site parking during times when ground conditions would otherwise prevent it. The surfacing will consist of a two-dimensional geogrid base layer (Tensar TriAx TX160 - this is for ecological purposes to act as a barrier to potential badger disturbance as there are active setts on site), followed by the main 3D cellular confinement system (Bodpave 85). This will be filled with topsoil and seeded to achieve a natural grass surface finish. This surfacing will be installed in line with BS5837 recommendations, ensuring a no-dig method along the length as shown on the TSCP, to achieve a naturalised permeable finish in keeping with the site objectives as a small nature reserve.

3.2.5 The second area of potential arboricultural conflict is where the proposed shipping container will be sited. A container is essential for the ongoing management of the site and will securely contain all tools and equipment needed by the owner. Its proposed location is currently marked out on site with steel rods, and will need to be a standard 6m x 2.4m size. It will have a height of c.2.5m above the tarmac surfacing including accounting for it being raised slightly on concrete building blocks (100mm high). Currently the ground in this area is partially vegetated, however the positioning is located fully on the tarmac surfacing of the former tennis court.

3.2.6 Over years of neglect, earth from the adjacent narrow strip of raised ground between the wall and tennis court has slumped down over the tarmac and become vegetated with small saplings and bramble/ruderal growth. This would be carefully scraped off, back to the edge of existing tarmac surfacing, and the young oak and hazel saplings growing over the tarmac would be manually lifted and transplanted elsewhere on site. Although positioning of the unit would be within the RPA of T5, there would be no impact to the roots as the tennis court surfacing would remain undisturbed, as a base for mounting the container unit and associated movements of equipment.

3.2.7 To ensure all RPAs are adequately protected from potentially damaging actions such as storage of materials/plant, temporary site buildings, changes in levels etc., the full extent of the RPAs not covered by existing hard surfacing should have protective fencing and/or temporary ground protection erected in line with BS5837 for the duration of site works. Details pertaining to the placement of protective barriers may be required as a condition of planning approval.

3.3 **Above ground constraints (branch spread):**

3.3.1 Trees in close proximity to buildings can pose some constraints, both real and perceived. Actual constraints occur where branches can conflict with new elevations, either now or in future. For this reason newly planted trees as well as younger existing trees need to be fully accounted for in the design and layout planning. Other significant constraints that are often overlooked include shading, leaf litter and damage from falling branches.

3.3.2 The container unit will be located partly beneath the crown spread of T5, being positioned to provide sufficient room for access/movement of equipment to/from the unit on the tarmac surfacing. Although beneath the crown, there will be sufficient clearance between the lowest branches (which are set back alongside the rear boundary wall) and the roof of the container. Also, given the robust nature of the storage unit, potential issues such as leaf litter or falling debris from above would not be a significant constraint on positioning.

3.3.3 Along the route of the access track, although it is beneath tree cover there will be sufficient width and vertical clearance for the owners vehicle and equipment to access the site without requiring any facilitation pruning. Therefore overall, it is concluded that above-ground arboricultural constraints will not be a significant issue for this low-impact scheme, where retention of existing tree cover and associated vegetation habitat is central to the intended use of the site as a nature reserve.

3.4 **Trees to be retained:** All surveyed trees will be retained and no works are necessary to facilitate the scheme. Access to the site during preparation and installation phases must be managed to protect the existing trees being retained. Sufficient space will be available on this site for plant and materials outside of unsurfaced RPAs of retained trees. However if any conflicts are foreseen then alternative arrangements must be made, in consultation with the project arboriculturist and local authority.

4. CONCLUSIONS & RECOMMENDATIONS

4.1 The design proposals for the access and storage scheme at Shanklin Manor, off Manor Road, Shanklin have been assessed in accordance with BS5837:2012 "Trees in relation to design, demolition and construction - Recommendations". It is my opinion that the trees identified for retention can be afforded due respect to ensure their safe and healthy retention during and following the development process.

4.2 As long as recommendations within this report are followed, I believe that all trees can be retained without undue stress on their long-term health.

Andrew Southcott
10th January 2024

Appendix 1 - BS5837: 2012 Tree Survey Schedule

Tree No.	Species	Height (m)	Stem Diameters (mm)								Branch Spread (m)				Crown Clearance (m)	Height & direction of 1st signif. limb	Age Class	Physiological Condition	Structural Condition	Preliminary Management Recommendations	Est. Remaining Contribution (yrs)	BS5837 Category Rating	Root Protection Radius (m)	RPA (m^2)
			Single Stem	2-5 stems					5> stems		N	E	S	W										
				Stem 1	stem 2	stem 3	stem 4	stem 5	Mean Dia.	No. Stems														
1	Sycamore	18		510	490	360					7	10	7	4	4	0r	EM	F	Multi stem between track and boundary bank, ivy, deadwood (dwd).		20-40	B2	9.5	284.9
2	Holm oak	20	680								7	10	6	9	2	4r	M	F	Asymmetrical growth, ivy, dwd.		20-40	B2	8.16	209.2
3	Holm oak	25	700								7	1	4	10	4	6w	M	F	Large asymmetrical growth with arching bough, dwd, decayed stump adjacent.		20-40	B2	8.4	221.7
4	Holm oak	22	920								8	3	5	11	2	2r	M	F	Large asymmetrical growth, dwd, separate oak growing at base.		20-40	B2	11.04	382.9
5	Scots Pine	17	660								6	5	8	10	3.5	3.5s	M	G	Prominent feature from manor side, good form, dwd, ivy.		40>	A1	7.92	197.1
G1	Sycamore, elm, bay	av. 10	Various as plotted								Various as plotted				2	0r	SM	F	Cluster of tree stems between track edge and boundary bank, dwd, ivy.		10-20	C2	Various as plotted	
G2	Goat willow	av. 7	160								3	3	3	3	2	-	SM	F	Group of younger self set trees to side of existing concrete surfacing.		10-20	C2	1.92	11.6

Appendix 2 - Tree Survey Explanatory Notes

1 **Height** describes the estimated height of the tree from ground level, to nearest 0.5m (nearest 1m where total height exceeds 10m). Where practicable a clinometer is used to aid accuracy.

2 **Stem diameter** is the diameter of the main stem(s) measured in millimetres (to nearest 10mm) at 1.5m above ground level in accordance with Annex C of BS 5837:2012. Stem diameter may be estimated where access is restricted or the trunk is covered in ivy. Estimated dimensions are suffixed with a hash (#).

3 **Branch spread** refers to the approximate crown radius in metres (rounded up to nearest 0.5m) from the centre of the trunk at the four cardinal points.

4 **Crown clearance** is the average height in metres (to nearest 0.5m) of crown clearance above adjacent ground level. Where access is restricted this may be estimated.

5 **Height & direction of first limb** in metres above ground level where relevant; section 4.4.2.5 of BS5837 states this should be recorded to fully inform on potential ground clearance issues.

6 **Age Class** is as follows: **Y** = young trees up to 10 years old; **SM** = semi-mature trees less than 1/3 life expectancy; **EM** = early-mature trees 1/3 to 2/3 life expectancy; **M** = mature trees over 2/3 life expectancy; **OM** = over-mature trees in decline; **V** = veteran tree possessing certain attributes relating to veteran trees.

7 **Physiological Condition** is either: **Good** (trees with only a few minor defects and in good overall health); **Fair** (trees with minor, but rectifiable, defects or in the early stages of stress from which it may recover); **Poor** (trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term); **Dead** (this could also apply to trees that are dying and unlikely to recover). This part of the assessment is essentially a snapshot of the trees' general health based on its appearance, vigour, and presence of any potential symptoms of poor health.

8 **Structural Condition** includes consideration of a range of factors including the presence of fungal fruiting bodies, cavities, decay and damage, condition/movement of soil around the tree base, growth habit, biomechanical related defects.

9 **Preliminary Management Recommendations** are focused on what is relevant in terms of the proposed development, as well as any obvious major issues that need addressing. The survey is not a condition or safety inspection so should not be relied upon as such.

10 **Estimated Remaining Contribution** is the approximate number of years the tree will continue to make a beneficial contribution without the need for oppressive arboricultural intervention, categorised as **<10**, **10-20**, **20-40** and **>40**.

11 **BS Category Rating** refers to BS 5837:2012 Table 1. This relates to tree/group quality and value, where **A** are trees of high quality with an estimated remaining life expectancy of at least 40 years, **B** are trees of moderate quality with an estimated remaining life expectancy of at least 20 years, **C** are trees of lower quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. Category **U** relates to trees 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. The sub-category refers to the value type, where **1** is mainly arboricultural, **2** is mainly landscape and **3** is mainly cultural including conservation, historic and commemorative.

12 **Root Protection Radius** is a radial distance measured from the trunk centre, giving the radius of an equivalent circle. It is calculated using the formulae described in paragraph 4.6.1 of BS 5837: 2012 and is indicative of the minimum rooting area that should remain undisturbed in order for a tree to be successfully retained.

13 **RPA** area is the minimum area in m^2 which should remain undisturbed (up to a maximum area equal to a circular radius of 15m).

Appendix 3 - BS5837 Cascade Chart for Tree Categorisation

Category & definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention				
Category U Trees in such a condition that they cannot realistically be retained as living trees in the context of current land use for >10yrs	• 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 showing signs of significant, immediate and irreversible decline; • Trees infected with significant pathogens affecting health or safety, or very low quality trees suppressing trees of better quality. ***NOTE**: these trees can have existing or potential conservation value making retention desirable*			**DARK RED**
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A Trees of **high quality** with an estimated remaining life expectancy of >40yrs	Particularly good examples of their species, esp. if rare or unusual. Those that are essential components of groups or formal or semi-formal arboricultural features (e.g. principal avenue trees)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).	**LIGHT GREEN**
Category B Trees of **moderate quality** with an estimated remaining life expectancy of >20yrs	Trees that might be included in category A but are downgraded because of impaired condition such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit category A designation.	Trees present in numbers, usually growing as groups or woodlands such that they attract a higher collective rating that they might as individuals. Trees occurring as collectives but situated so as to make little visual contribution to the area.	Trees with material conservation or other cultural value.	**MID BLUE**
Category C Trees of **low quality** with an estimated remaining life expectancy of >10 years, or young trees with a stem diameter <150mm	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 landscape benefits.	Trees with no material conservation or other cultural value.	**GREY**

Appendix 4 - Tree Survey & Constraints Plan

(please see attached plan - drawing no. AS/PC/0124 TSCP)