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Bernie Harverson
arboricultural consultant

ARBORICULTURAL IMPACT ASSESSMENT

for

Windsong, Ferry Road, Hayling Island

-prepared on behalf of ***Mr & Mrs Atkins*** *–*

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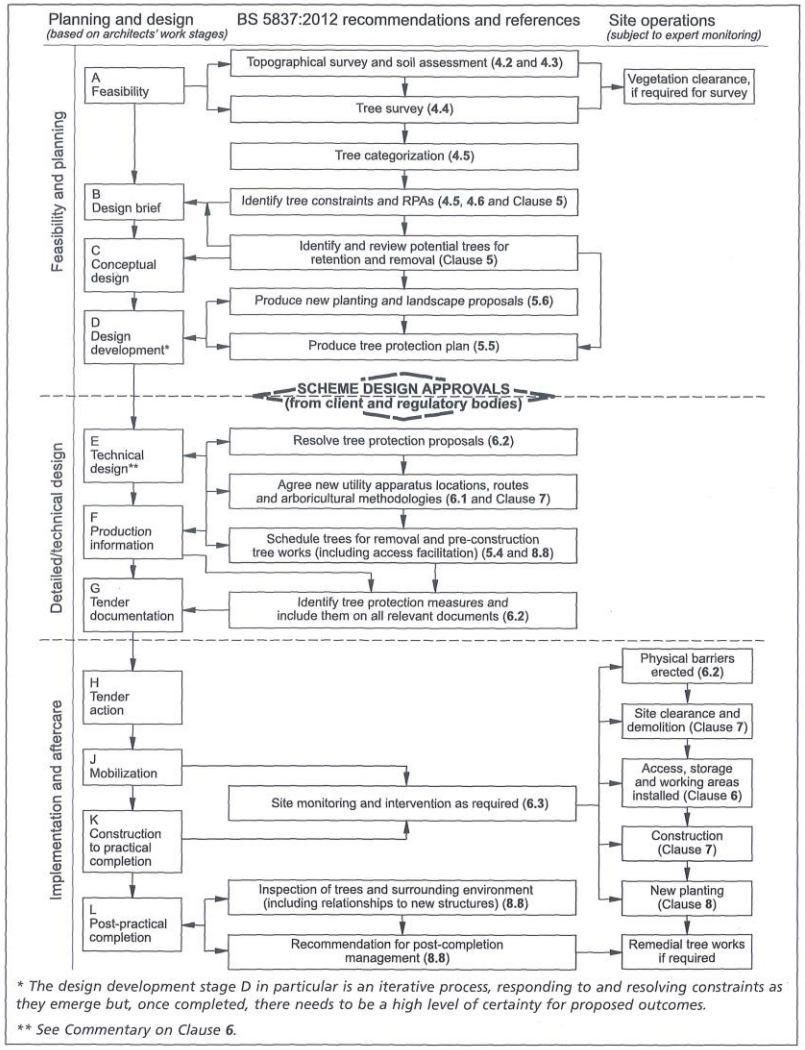
Tree Survey Schedule

+ T/S Notes & BS5837 Flow Diagram

Figure 1 **The design and construction process and tree care**



TREE SURVEY NOTES

These Tree Survey Notes have been prepared in accordance with the recommendations of **British Standard 5837:2012** and they define the criteria for pre –development tree surveys.

- Each tree/group/hedge/shelterbelt/woodland has been allocated a unique number (**No.**). where specifically requested and appropriate fees are agreed small durable numbered metal tags can be applied to each tree/group surveyed.
- The tree species (**Species)** is provided in both Enground levelish and Latin name formats.
- Height assessments (**Ht**) are estimated in metres. This will be adequate for the majority of cases, but where accurate heights become a critical issue it may be necessary to return to site, as a separately commissioned exercise, to collect accurate measurements with the aid of optical instruments.
- Trunk/stem diameters (**Diam**) are measured in millimetres **at 1.5m above ground level** – where the tree is inaccessible the diameter is estimated as indicated by suffix **#**
- Radial crown spread assessments (**Brch Sprd**) are estimated in metres from the centre of the trunk/group to each of the four primary points of the compass (**N**-north**; E**-east**; S**-south and **W**-west**)** in order to achieve a representation of the crown shape which will be shown on the accompanying tree survey plan. These provide a general guide as to the main bulk outline of a tree/groups crown but **are not tape measured dimensions.** These would only be undertaken as part of a separately commissioned exercise, where precise dimensions are critical to the project at hand.
- Both the canopy ground clearance (**GC**) and the height & compass direction of the lowest major branch (**LMB**) are estimated and shown in metres
- An assessment of a tree/groups 'life stage' (**LS)** is made in terms of its site specific maturity as part of the surrounding landscape, taking into account its overall shape and form in that setting, and is recorded thus :-
  Y - Young tree/group; **SM - Semi**-Mature tree/group; **EM -** Early-Mature tree/group;
  M – Mature tree/group; **OM -** Over – mature tree/group
- Data on the structural condition (**Condition Comments)** of the tree/group is provided to give its visual appearance and any significant health and safety issues.
- Details of any recommended tree works required at the time of survey is given under the heading – **Preliminary Management Recommendations.**
- An estimate of a tree/groups remaining contribution in years (**RC)** is made and is recorded thus :-
  0-5; 5-10; 10-20; 20-30; 30-40 or **>40** years**.**
- The category grading (**Cat)** for each tree/group is assessed according to the criteria provided within **BS5837:2012.** The assessment is made of the tree/group in its current condition and within the environment encountered bearing in mind its suitability for retention as part of any future proposed development; although the exact layout detail of any specific scheme will not be known at the time of surveying. The trees have been classified into one of four categories and colour coded as BS5837 recommends :- **U** (dark red); **A** (light green); **B** (mid-blue) and **C** (grey).Please note that suffixed numerical sub-categories are also applied for guidance only and do not carry any cumulative or increased value for the tree/group. This colour coding scheme will be applied to all drawings provided.

Table 1 – Cascade chart for tree quality assessment

Category and definition	**Criteria**			**Colour on plan**
Trees unsuitable for retention				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (i.e. 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, or very low quality trees suppressing adjacent trees of better quality NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve.			**Dark Red**
Trees to be considered for retention				
	Criteria – Subcategories			
	1	**2**	**3**	
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	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)	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 at least 20 years	Trees that might be included in the 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	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	Trees with material conservation or other cultural value	**Mid Blue**
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 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/transient landscape benefits	Trees with no material conservation or other cultural value	**Grey**

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TREE SURVEY SCHEDULE

Client : **Mr & Mrs Atkins** **Site Location :** **Windsong, Ferry Road, Hayling Island**

Surveyor : Bernie Harverson **Date Surveyed :** 11th October 2016

Tree No.	Species	Ht m	Diam mm	Brch Sprd m	GC m	LS	Comments	Preliminary Management Recommendations	Rem Con yrs	Cat
1	Silver Birch *Betula pendula*	8	200 160	N 2.5 E 2 S 2.5 W 3.5	1.5	SM	Bifurcated at ground level-leans north-previously heavily topped out-northern stem contains significant basal decay-poor quality tree	No work required at time of survey	<10	**U**
2	Silver Birch *Betula pendula*	9	360	N 1.5 E 1.5 S 2 W 5	1	SM	Bifurcated 1.8m above ground level-crown weighted west-previously heavily topped out-low branching habit-flat pruned on neighbours side	No work required at time of survey	10-20	C1
3	Sycamore *Acer pseudoplatanus*	11	380	N 5 E 2.5 S 1.5 W 5	2	SM	Flat pruned on neighbours side	No work required at time of survey	>40	B1
4	Tamarisk *Tamarix pentandra*	3	200	N 2 E 1.5 S 1 W 3	1.5	EM	Suckers –leans south-suppressed-previously heavily topped out-poor quality tree	No work required at time of survey	10-20	C1

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Root Protection Area Schedule

+ BS5837 RPA Calculation Methodology

4.6 Root Protection Area (RPA)

4.6.1 For singround levele stem trees, the RPA should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter measured at a height of 1.5m from ground level.

For trees with more than one stem, one of two calculation methods should be used as illustrated and explained below.

a) For trees with 2 to 5 stems, the combined stem diameter should be calculated as follows:

$$\sqrt{(\text{stem diameter } 1)^2 + (\text{stem diameter } 2)^2 \ldots \text{ up to } + (\text{stem diameter } 5)^2}$$

In words - measure the diameter of each of the stems – square each one and add it to the next - finally assess the square root of the combined total to derive one measurement which you look up in Table D.1 to find the radial RPA and area measurement equivalent to the area of a circle with that radius - in case you have to apply a polygon protection zone [see at 4.6.2 below].

The calculated RPA for each tree is to be capped at 707 m^2

b) For trees with more than five stems the combined stem diameter should be calculated as follows:

$$\sqrt{(\text{mean stem diameter})^2 \times \text{the total number of stems}}$$

In words – measure all of the stem diameters – add them all together and divide by the total number of stems (= mean stem diameter) – then square this figure – then multiply that figure by the total number of stems and then finally assess the square root of that figure to derive one measurement which you look up in Table D.1 to find the radial RPA and area measurement equivalent to the area of a circle with that radius - in case you have to apply a polygon protection zone [see at 4.6.2 below].

4.6.2 The RPA for each tree should initially be plotted as a circle centred on the accurate position of the trunk of the tree. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area to the circle should be plotted instead of the circle. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution.

4.6.3 Any deviation in the RPA from the original circular plot should take account of the following factors whilst still providing adequate protection for the root system:

a) the morphology and disposition of the roots, when influenced by past or existing site conditions (e.g. the presence of roads, structures and underground apparatus);
b) topography and drainage;
c) the soil type and structure;
d) the likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and past management.

Root Protection Area – Table D1

The RPA's given in Table D.1 should be used for single stem trees and the equivalent resultant combined stem diameter for multi-stemmed trees

Stem Diam. mm	Circle Rad. m	Area m^2	Stem Diam. mm	Circle Rad. m	Area m^2	Stem Diam. mm	Circle Rad. m	Area m^2	Stem Diam. mm	Circle Rad. m	Area m^2	Stem Diam. mm	Circle Rad. m	Area m^2
75	0.9	3	**310**	3.7	43	**545**	6.5	134	**780**	9.4	275	**1015**	12.2	466
80	1.0	3	**315**	3.8	45	**550**	6.6	137	**785**	9.4	279	**1020**	12.2	471
85	1.0	3	**320**	3.8	46	**555**	6.7	139	**790**	9.5	282	**1025**	12.3	475
90	1.1	4	**325**	3.9	48	**560**	6.7	142	**795**	9.5	286	**1030**	12.4	480
95	1.1	4	**330**	4.0	49	**565**	6.8	144	**800**	9.6	290	**1035**	12.4	485
100	1.2	5	**335**	4.0	51	**570**	6.8	147	**805**	9.7	293	**1040**	12.5	490
105	1.3	5	**340**	4.1	52	**575**	6.9	150	**810**	9.7	297	**1045**	12.5	494
110	1.3	5	**345**	4.1	54	**580**	7.0	152	**815**	9.8	301	**1050**	12.6	499
115	1.4	6	**350**	4.2	55	**585**	7.0	155	**820**	9.8	304	**1055**	12.7	504
120	1.4	7	**355**	4.3	57	**590**	7.1	157	**825**	9.9	308	**1060**	12.7	508
125	1.5	7	**360**	4.3	59	**595**	7.1	160	**830**	10.0	312	**1065**	12.8	513
130	1.6	8	**365**	4.4	60	**600**	7.2	163	**835**	10.0	315	**1070**	12.8	518
135	1.6	8	**370**	4.4	62	**605**	7.3	166	**840**	10.1	319	**1075**	12.9	523
140	1.7	9	**375**	4.5	64	**610**	7.3	168	**845**	10.1	323	**1080**	13.0	528
145	1.7	10	**380**	4.6	65	**615**	7.4	171	**850**	10.2	327	**1085**	13.0	533
150	1.8	10	**385**	4.6	67	**620**	7.4	174	**855**	10.3	331	**1090**	13.1	538
155	1.9	11	**390**	4.7	69	**625**	7.5	177	**860**	10.3	335	**1095**	13.1	542
160	1.9	12	**395**	4.7	71	**630**	7.6	180	**865**	10.4	339	**1100**	13.2	547
165	2.0	12	**400**	4.8	72	**635**	7.6	182	**870**	10.4	342	**1105**	13.3	552
170	2.0	13	**405**	4.9	74	**640**	7.7	185	**875**	10.5	346	**1110**	13.3	557
175	2.1	14	**410**	4.9	76	**645**	7.7	188	**880**	10.6	350	**1115**	13.4	562
180	2.2	15	**415**	5.0	78	**650**	7.8	191	**885**	10.6	354	**1120**	13.4	568
185	2.2	16	**420**	5.0	80	**655**	7.9	194	**890**	10.7	358	**1125**	13.5	573
190	2.3	16	**425**	5.1	82	**660**	7.9	197	**895**	10.7	362	**1130**	13.6	578
195	2.3	17	**430**	5.2	84	**665**	8.0	200	**900**	10.8	366	**1135**	13.6	583
200	2.4	18	**435**	5.2	86	**670**	8.0	203	**905**	10.9	371	**1140**	13.7	588
205	2.5	19	**440**	5.3	88	**675**	8.1	206	**910**	10.9	375	**1145**	13.7	593
210	2.5	20	**445**	5.3	90	**680**	8.2	209	**915**	11.0	379	**1150**	13..8	598
215	2.6	21	**450**	5.4	92	**685**	8.2	212	**920**	11.0	383	**1155**	13.9	604
220	2.6	22	**455**	5.5	94	**690**	8.3	215	**925**	11.1	387	**1160**	13.9	609
225	2.7	23	**460**	5.5	96	**695**	8.3	219	**930**	11.2	391	**1165**	14.0	614
230	2.8	24	**465**	5.6	98	**700**	8.4	222	**935**	11.2	396	**1170**	14.0	619
235	2.8	25	**470**	5.6	100	**705**	8.5	225	**940**	11.3	400	**1175**	14.1	625
240	2.9	26	**475**	5.7	102	**710**	8.5	228	**945**	11.3	404	**1180**	14.2	630
245	2.9	27	**480**	5.8	104	**715**	8.6	231	**950**	11.4	408	**1185**	14.2	635
250	3.0	28	**485**	5.8	106	**720**	8.6	235	**955**	11.5	413	**1190**	14.3	641
255	3.1	29	**490**	5.9	109	**725**	8.7	238	**960**	11.5	417	**1195**	14.3	646
260	3.1	31	**495**	5.9	111	**730**	8.8	241	**965**	11.6	421	**1200**	14.4	652
265	3.2	32	**500**	6.0	113	**735**	8.8	244	**970**	11.6	426	**1205**	14.5	657
270	3.2	33	**505**	6.1	115	**740**	8.9	248	**975**	11.7	430	**1210**	14.5	662
275	3.3	34	**510**	6.1	118	**745**	9.0	251	**980**	11.8	435	**1215**	14.6	668
280	3.4	35	**515**	6.2	120	**750**	9.0	255	**985**	11.8	439	**1220**	14.6	673
285	3.4	37	**520**	6.2	122	**755**	9.1	258	**990**	11.9	443	**1225**	14.7	679
290	3.5	38	**525**	6.3	125	**760**	9.1	261	**995**	11.9	448	**1230**	14.8	685
295	3.5	39	**530**	6.4	127	**765**	9.2	265	**1000**	12.0	452	**1235**	14.8	690
300	3.6	41	**535**	6.4	130	**770**	9.2	268	**1005**	12.1	457	**1240**	14.9	696
305	3.7	42	**540**	6.5	132	**775**	9.3	272	**1010**	12.1	462	**1245**	14.9	701
												1250	15.0	707

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ROOT PROTECTION AREA SCHEDULE

Client : **Mr & Mrs Atkins** **Site Location :** **Windsong, Ferry Road, Hayling Island**

Tree No	Tree Species	Cat	Diam mm	BS5837:2012 Table1 Radial Protection Zone m	BS5837:2012 Table D1 Polygon Area m^2	Is An Offset Required To Cater For Existing Rooting Pattern Restrictions
1	Silver Birch *Betula pendula*	**U**	200 160	3.1	30	NO – could be removed for sound arboricultural management reasons regardless of any redevelopment proposals
2	Silver Birch *Betula pendula*	C1	360	4.3	59	NO – free rooting to all directions
3	Sycamore *Acer pseudoplatanus*	B1	380	4.6	65	NO – free rooting to all directions
4	Tamarisk *Tamarix pentandra*	C1	200	2.1	18	NO – free rooting to all directions

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Tree Survey &
Root Constraints Plan

Bernie Harverson
arboricultural consultant

Qualifications & Experience

Bernie Harverson
arboricultural consultant

QUALIFICATIONS AND EXPERIENCE

- My name is Bernie Harverson and I am a self employed independent arboricultural consultant in private practice. I take instructions primarily in the South of England but also on occasions work nationwide and abroad and have offices at : –
  3 Foxcombe Cottages, South Harting, West Sussex GU31 5PL and at Cedar Court, 5 College Street, Petersfield GU31 4AE
- I hold the following arboricultural qualification – **National Diploma in Arboriculture** (Royal Forestry Society – 1976)
- I have over **forty six** years of practical and managerial experience in the arboricultural industry including periods in both the public and private sectors.
- My Local Government sector experience comprises one year as a tree surgeon with Brighton Parks and nine years spent in Arboricultural Officer posts with both Westminster City Council and Portsmouth City Council
- My past practical experience in the private sector includes two years at Tilhill Forest Nursery and over ten years for various companies as a Climbing Arborist/Tree Surgeon.
- Managerial work in the private sector includes two years as manager of Beechings Tree Surgeons and twelve years with the CBA Tree Consultancy Practice as Managing Director and Senior Arboricultural Consultant.
- As an independent self employed Arboricultural Consultant [since 2005] I now provide a comprehensive range of services including :-
  tree surveys, appraisals, assessments and inspections with particular reference to planning and development and tree safety audits with a service offered as a climber to undertake full climbing inspections to better understand the condition of a given tree before prescribing a management strategy.
- I also undertake litigation work appearing as an Expert Witness in Court Actions and at Planning Appeals, Hearings and Local Inquiries.

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