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BS 5837:2012 Tree Survey for Land to the North and South of Uplowman Road, Tiverton, Devon.

22nd January 2013.

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Ref: 13.002.1.TCP.rep

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Client:	Waddeton Park Ltd.
Ref no:	12.076.1.TCP.rep
Site details:	Land to the north and south of Uplowman Road, Tiverton.
Date of site inspection:	27th January 2012 and 17th January 2013.
Report Author:	Doug Pratt BSc (Hons.) For., F. Arbor A. Devon Tree Services Ltd.
Proposal:	Unspecified.

1.0 Instruction and purpose of survey and report

1.1 This report follows from a tree survey on land to the north and south of Uplowman Road, Tiverton.

1.2 The tree survey and this report make reference to BS5837:2012 (Trees in relation to design, demolition and construction – Recommendations), as requested and instructed by Mr. T Baker of Waddeton Park Ltd.

1.3 The area of survey is that as defined by green shading on the sketch plan referenced as 'ES1' supplied by Mr. Baker (Figure 1, page 7).

2.0 The scope of the report - methodology & limitations

2.1 The tree survey process consisted of a 'walk over' inspection only, without the benefit of a topographical survey. Therefore tree positions are not accurately plotted on an associated tree constraints plan, but are annotated onto the accompanying tree location plans.

2.2 Limitations of use and copyright**:**

3.0 Site location

3.1 The land subject to the survey is located approximately 3.6km north east from Tiverton town centre (see location plan, Figure 1, page 7).

3.2 The site encompasses five arable fields. Three fields are to the south of Uplowman Road, and back onto residential properties of 'Fairway' to the

south, which is the higher part of the site. The gradient then descends to gently to the north to Uplowman Road, with other property forming the south west boundary.

3.3 The two fields to the north of Uplowman Road are level, and are bordered by the A361 dual carriageway to the north and Uplowman Road to the south. The south west border of this section of the site is shared with other residential properties.

4.0 Nature of tree stock

4.1 The tree survey data table on pages 10 and 11 gives general information about the trees and their grading according to BS5837:2012. BS5837 requires a survey of any tree population to identify four categories of trees; trees that are highly desirable to retain (A), good quality trees (B), and (C); trees which may or may not be suitable for retention. Trees marked 'U' (Unsuitable for retention) should be removed due to their condition and/or life expectancy. The system assesses not only tree health and condition, but other factors such as their long-term impact on adjacent structures and good arboricultural management. Details of the categorisation system are provided on page 9.

4.2 All trees grow from, on or adjacent to the site boundaries. Most are 'native' species, although some 'exotics' are located in residential gardens (indicated by 'OS' meaning off site) bordering the site. These have been included where the off site trees could be implicated by the development of the site.

4.3 The most significant trees in terms of prominence and contribution to landscape and amenity are the large, mature Oaks comprising Group 8 (G8), which occupy a narrow linear strip between Uplowman Road and the east field of the site north of Uplowman Road. The strip of land also has Hazel and Willow, plus one Ash and one Beech tree, both of which are of compromised condition. The Oaks qualify for the higher 'A' and at least 'B' categories.

4.4 Other prominent tree groups are G4, G10 and G11. G4 adjacent to the west boundary of the south section consists of mainly mature Beech with some Ash, and grows from the boundary shared with properties on Post Hill. G10 and G11 appear to straddle the boundary of the north section between the site and the residential properties to the west. The boundary consists of a ditch and bank on the other side, which is where most of the trees grow, however, some grow from the site side of the ditch. G10 consists of larger Oaks and Beech. G11 tend to be smaller trees of Oak, Beech and Ash. Both groups have trees which have been crown reduced recently. Due to a variety of conditions and their past management G4, G10 and G11 are placed in the 'B' categories.

4.5 Individual Oaks 01 to 04 grow from the east boundary of the south section adjacent to the lane connecting Uplowman Road and Post Hill. They are visually prominent, and vary in condition. They are categorised as C to B

trees. Other individual trees grow from the north side of Uplowman Road; 07 to 09: Lime, Birch and Oak. These are B category trees.

4.6 There is one individual tree which is categorised as an 'A' tree; a large mature Beech tree (05) located on the boundary in the south corner of the south section.

5.0 Root protection areas (RPAs):

5.1 BS 5837:2012 makes recommendations for the provision of areas around trees where their roots should be protected, known as Root Protection Areas, or RPAs, expressed in square meters. For any tree, BS5837 prescribes this area according to a formula[1] using stem diameter measurements of the trees in question. RPAs for individual trees are listed within the survey data table.

5.2 Site features such as surfacing, built structures, banks and ditches can influence the rooting distribution of trees. Where the site borders roads, the presence of impervious surfacing will influence the rooting distributions of the adjacent trees nearby. It is also noted that all the fields of the site are ploughed right up the field edge (although the west end of the north site is currently under grass, this appears to have been ploughed in the past); this will in effect remove all roots to a depth of approximately 200mm. Theoretically some roots could be extending from the trees into the sub soil of the fields below this depth. If it can be established what cultivation (depth of ploughing) has been applied how frequently and for how long, a better understanding of the rooting distributions for the edge trees might be gained.

5.3 The survey data table gives the radial distances for root protection for individual trees comprising the tree groups, using the recommendations of BS5837 as derived by average stem diameters within each group. The radial distance may be applied to the group as a 'buffer' where it is recommended to avoid excavations, ground level changes, storage of materials and vehicle movements during construction.

6.0 Considerations:

6.1 **Construction damage:** It is recommended to avoid deep excavations within the areas as described above (5.3). However, light structures and narrow minor roads or drives may be considered as acceptable within these areas subject to sufficient detail over construction specification and methodology.

6.2 **Shade:** The Oaks of G8 in particular will cast their shade to their north. Should residential development occur within 20m of them (to take into account further growth) shading and daylight issues should be considered by the layout. Indicative shadow paths can be plotted to inform potential layouts, but this will require accurate locations for the trees necessitating a topographical survey. A similar distance is recommended to be kept free of

[1] Section 4.6, pages 10 and 11.

development for the Beech 05.

6.3 **Domination:** Where buildings particularly residential dwellings are placed within the 'falling zone' of a tree, the perceived threat can lead to increased pressure for their removal or pruning. In order to avoid unsustainable juxtaposition between trees and buildings adequate buffers will be required; the larger the tree, the greater the distance. It is recommended that non residential components such as car parking, bin stores and garages are closer to trees rather than actual living areas.

7.0 Tree protection measures

7.1 Tree protection barriers are recommended to be erected around the RPAs of the trees, and the buffer areas for the tree groups, facing the area of construction activity. The area enclosed by the fencing is to be designated as a construction exclusion zone, within which there is to be no storage of materials or transit of machinery which could cause ground compaction.

7.2 It is also recommended that the following precautions are also adhered to to minimise the potential for damage to trees:

a) Ensure wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with the tree canopies. Any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banksman to ensure that adequate clearance from trees is maintained at all times.
b) Material which will contaminate the soil, e.g. concrete mixings, diesel oil and vehicle washings, should not be discharged within 10m of a tree stem.
c) It is essential that allowance be made for the slope of the ground so that damaging materials such as concrete washings, mortar or diesel oil cannot run towards trees.
d) Fires should not be lit in a position where their flames can extend to within 5m of foliage, branches or trunk. This will depend on the size of the fire and the wind direction.
e) Notice boards, telephone cables or other services should not be attached to any part of the trees.

8.0 Conclusions

8.1 Unspecified development is proposed land to the north and south of Uplowman Road, Tiverton. This report presents the results of a 'walk over' inspection for the site with reference to 5837:2012 (Trees in relation to design, demolition and construction – Recommendations).

8.2 The site encompasses five arable fields; two to the north of Uplowman Road, and three to the south. All trees grow adjacent to or on the site boundaries.

8.3 Most trees are within groups of similar species, size and age. There are seven individual trees. The most obvious and significant trees are large, mature Oaks growing from a narrow linear strip between Uplowman Road

and the east field of the site north of Uplowman Road. These are categorised as 'A' trees according to BS5837, however, more detailed inspection may refine the category level. Ample distance is recommended to be kept between any development and the Oak trees of G8 and also an individual Beech (05).

8.4 Subject to tree protection measures in accordance with the guidelines of BS5837:2012, a Tree Protection Plan (TPP) may be produced for the significant trees on site to adequately protect them during the building phase and hence not cause damage to them due to construction processes.

Signed: *D. P. Pratt* Dated: 22nd January 2013.

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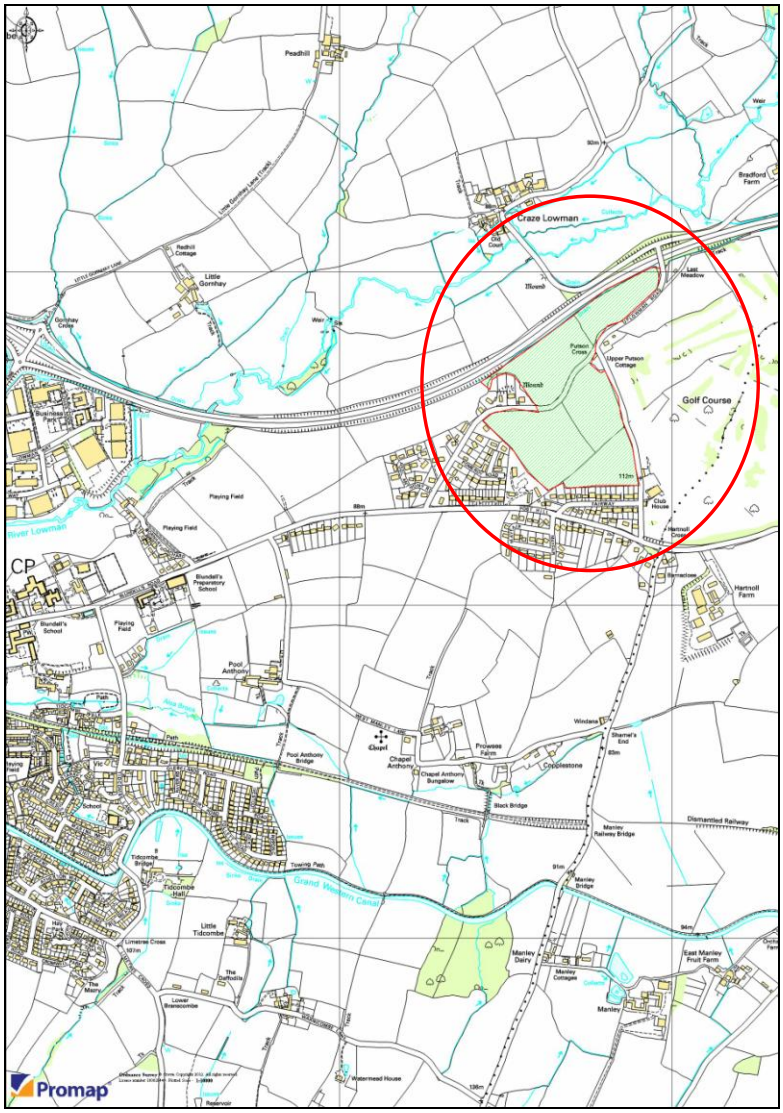

Site Location Plan (Not to Scale)

Walk over tree survey information;

SURVEY KEY: Abbreviations and categories used in the survey are as follows:

All dimensions have been estimated.

Tree No.	Tag number and corresponding number on plan.
Species.	Common name and botanical name in italics.
Height (Ht.).	Estimated height.
Stem diameter. (Dia.).	Diameter in millimetres at 1.5m above ground level. B indicates a basal measurement. OI indicates where stem diameter has been measured over Ivy.
Branch spread.	Estimated on the four compass points. For tree groups the degree of spread into the site is estimated.
Height of crown clearance (HCC).	The height to the lowest branch attachments
Age Class.	Young (Y). Middle aged (MA). Mature (M). Over Mature (OM). Veteran (V).
Condition: Physiological and Structural.	Good. Fair. Poor. Dead. In addition specific diseases, defects or faults are described.
Action and/or comments.	Recommendations for tree work where observed as necessary, including further investigations of suspected defects which may require more detailed assessment. If blank no works are recommended.
ERC: Estimated remaining contribution in years.	Less than 10 years. 10 - 20 years. 20 - 40 years. More than 40 years.
Cat: Category Grading (BS5837).	U or A, B, C.
Root Protection Area (RPA).	The root protection in m^2, as area and radial distance as measured from the centre of the tree stem. Where an * is present the R.P.A. cannot be achieved due to ground constraints, or it is located outside the site.

Table 1 – Cascade chart for tree quality assessment (extract from BS5837:2012 Trees in relation to design, demolition and construction – Recommendations)

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	• 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 U category 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; see **4.5.7**.*			DARK RED
	1 Mainly Arboricultural values	**2 Mainly landscape values**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A Those of high quality and value: 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 their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	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 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 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 150 mm	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

TREE SURVEY SCHEDULE – south of Uplowman Road, Tiverton

Tree Ref. No.	Species	Ht. (m)	Dia. (mm)	Branch spread (m)				HCC (m)	Age Class	Condition	Action and/or comments	ERC	Cat.	RPA (m^2)	Radial RPA (m)
				N	E	S	W								
G1	Norway Spruce *Picea abies*	12	300 E	-	-	-	-	-	M	Group of trees growing off site, Beech trees reach into site by 1m. Full view not possible.	One or two Beech *Fagus sylvatica.*	20+	B2	41	3.6
01	Oak *Quercus robur*	8	400 E	4	2	5	6	3.5	M	Fair vigour; some dead wood over site.		20+	B1	72	4.8
02	Oak *Quercus robur*	8	600 E OI	5	2	3	3	4+	M	Declining vigour, poor condition. Dead wood of up to 100mm Ø.	Ivy obscures full view, sever Ivy.	20	C1	163	7.2
03	Oak *Quercus robur*	15	1060	6	5	8	6	2.5	M	Fair vigour and fair structural condition.		40	B1	510	13
04	Oak *Quercus robur*	10	600	6	5	8	6	2	M	Fair vigour and fair structural condition.		40	B1	163	7.2
OS1	Ash *Fraxinus excelsior*	10	-	5	4	-	4	0	M	Fair vigour and fair structural condition; acute unions from base will limit longevity if not managed.	Full view not possible.	20	B2	-	-
G2	Lawsons' Cypress Chamaecyparis lawsoniana	12 15	1300 E	-	-	-	-	0	M	Assumed fair vigour and fair structural condition. Full view not possible. Also Eucalyptus.		20	C2	-	-
OS3	Cherry *Prunus avium*	5	250 x 2	-	-	-	-	0	M	Assumed fair vigour and fair structural condition. Full view not possible. Reaches into site by 3m.		20	C1	56.5	4.2
OS4	Willow *Salix* spp.	5	250?	0.5	0.5	0.5	0.5	-	-		Full view not possible.	10+	C1		
05	Beech *Fagus sylvatica*	18	650 E	8	8	6	7	4	M	Good.		40	A1	191	7.8
G3	Beech *Fagus sylvatica*	18	300 Ave.	-	7	-	-	0.5	M	Good vigour and fair structural condition; acute unions with splits and decay.	Requires management.	40	B2	244	8.8
G4	Beech *Fagus sylvatica* Ash *Fraxinus excelsior* Oak *Quercus robur*	20	400 Ave.					4		Fair vigour and fair structural condition. Mainly Beech.		40	B2	72	5.0 per stem
OS6	Oak *Quercus robur*	18	800 E	7	6	2	4	5	M	Fair vigour and fair structural condition.	Ivy obscures full view.	20	B1	290	10.0
06	Beech *Fagus sylvatica*	16	-	-	3	4	4	0	MA	Good vigour and fair structural condition.	Unsuitable location; nearby cables.	-	U	-	-

TREE SURVEY SCHEDULE – north of Uplowman Road, Tiverton

Tree Ref. No.	Species	Ht. (m)	Dia. (mm)	Branch spread (m)				HCC (m)	Age Class	Condition	Action and/or comments	ERC	Cat.	RPA (m^2)	Radial RPA (m)
				N	E	S	W								
G5	Field Maple *Acer campestre*	12	150 Ave.	4	-	-	-	2	MA	Highway embankment planting.		20+	B2	-	5.0
G6	Goat Willow *Salix caprea*	6	100 Ave.	-	-	-	2	0	MA	Highway embankment planting.		20	B2	-	5.0
G7	Oak *Quercus robur* Ash *Fraxinus excelsior*	8	300 - 400	-	-	-	2	1	MA	Hawthorn and Goat Willow as hedge.		40	B2	See notes.	10.0
G8	Oak *Quercus robur* Ash *Fraxinus excelsior*	15 - 20	500 to 750	8	-	-	-	2	M	Oaks are most frequent. Hawthorn and Goat Willow form understory and grow in-between standards. Ash lapsed coppice stool not viable for long term retention.		40	A/B2	See notes.	
07	Lime *Tilia* spp.	7	320	4	4	4	4	1.8	MA	Good.		40+	A1	46	3.8
08	Birch *Betula pendula*	9	300	3	3	3	3	1.8	MA	Good.		40	A1	41	3.5
09	Oak *Quercus robur*	7	350	4	5	4	4	1.8	MA	Fair; twisted and intertwining branches.		40+	B1	55	4.2
G9	Beech *Fagus sylvatica* Ash *Fraxinus excelsior*	12	Up to 400	5	-	-	-	1	MA	Fair condition, some congested stems.		40	B2	See notes.	5.0
G10	Ash *Fraxinus excelsior* Oak *Quercus robur* Beech *Fagus sylvatica*	15 to 20+	500 to 750	-	5	-	-	0 to 5	M	Mainly off site on other side of ditch, fewer trees site side of ditch. Some trees crown reduced. Varying conditions.		20+	B2	See notes.	10.0
G11	Ash *Fraxinus excelsior* Oak *Quercus robur* Beech *Fagus sylvatica*	10 to 15	500 to 750	-	3	-	-	0 to 5	M	As above but generally smaller.		20+	B2	See notes.	10.0
G12	Ash *Fraxinus excelsior* Beech *Fagus sylvatica* Hazel *Corylus avellana*	Up to 15	Up to 500	5	-	-	-	0	M	Poor; some Beech stools are particularly decayed.		20	C2	113 per stem	6.0 per stem
G13	Scots Pine *Pinus sylvestris* Mixed broadleaves	Up to 10	300	-	-	1	-	2	MA	Good.		40+	B2	41	3.7